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ENDOCRINOLOGY

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INTERNAL SECRETIONS

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ENDOCRINOLOGY

THE BULLETIN of the ASSOCIATION for the STUDY of

INTERNAL SECRETIONS

OCTOBER–DECEMBER, 1919

THE ROLE OF THE PINEAL IN PEDIATRICS—A REVIEW OF THE LITERATURE

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The pineal body is a small cone shaped organ about 5 mm. in diameter, attached by a short stalk to the posterior boundary of the dorsal surface of the third ventricle. It varies in size, shape and pigmentation and does not stand in any proportional relation to either the size of the brain or of the body. Cytological studies by various investigators support the view that it has lost all the structural characteristics of a sense organ and that it possesses those of a gland, containing secreting cells and probably some nerve cells. Pende claims that it is connected by means of medullated nerve fibres with the diencephalon and the mesencephalon.

The greatest post-natal development takes place during the first few years of life, this being followed by physiological involution of the gland. The age at which this retrograde change takes place has not been fully established, Biedl claiming that it is at seven years, while Cushing places it at the time of puberty. This retrogressive process is not considered by McCord or Krabbe to be a complete degeneration, but a change in the nature

of the cells which still permits of some function in the adult, the latter stating that involution signs at 90 are no more pronounced than at 14.

The retrograde changes as described by Krabbe are an increase in the connective tissue, the formation of concretions, neuroglial plaques, cysts and cells of disintegration. Recent observers have found the presence of small cysts so constant as to make them feel that cyst formation is part of normal involution. Marburg believes that the first sign of involution of the pineal is the appearance of brain sand. This sand or acervulus cerebri has been found as early as 7 years of age by the majority of observers. Uremura found it in a child as young as 4 years. The concretions are first found in the glia layer, which covers the habenular commissure and are composed of calcium carbonate and calcium phosphate. As age increases, the connective tissue increases at the expense of the glandular element. Through apposition and fusion the concretions may assume various shapes and sizes, the latter ranging from the size of a leucocyte to that of one-third of the gland. Calcification occurs in the normal process of involution, increases with age and has no physiological or pathological significance except in the young under 7 years of age. In this case, the concretions may be evidences of an early involution of the gland and give rise to symptoms of insufficiency of the pineal secretion.

EXTIRPATION

The successful extirpation of the pineal is attended with many difficulties due to the changes incident to the severe operative procedure necessary because of the anatomical relations of the gland, producing thereby injury to the brain and hemorrhages from the venous sinuses. There is always a possibility of an incomplete removal of the gland with the production of inflammatory changes in the remaining portion with a resulting increase in the pineal secretion. The contrary findings at the hands of some investigators may perhaps be explained on this basis, as was demonstrated by Sarteschi, who autopsied his animals which had previously been subjected to pinealectomy by himself and found that portions of the gland had been left behind. While portions are undoubtedly left behind in some instances and under the whip of inflammatory processes may be-

come unusually active, still any wide generalization on this basis is unjustified unless supported by more significant facts.

It seems that the pineal in rabbits and guinea pigs cannot be removed in life without rupturing a number of large venous sinuses around and under it and to destroy it completely, the cautery must be used. Horrax feels that some of the symptoms following the operation may be attributed to injuries incident to the pinealectomy.

The difficulties of extirpation are shown in the attempts of the early investigators. Sarteschi in 1911 experimented with the cautery on eleven animals, with unsatisfactory results. Later, by means of the knife and ligation, he succeeded in removing the gland from two puppies and three guinea pigs. One puppy was said to have gained in weight over his control and also to have shown accelerated sexual development. On autopsy, it was found that the testes were larger. The other puppy had no control. In the guinea pigs there was an increase in the body weight and an enlargement of the testes in one animal over the control. No changes were found in any other gland of internal secretion. His findings are similar to those of Foà, who found in his first series that rabbits were unsuited for pinealectomy, but later succeeded with chicks in having three cocks and twelve hens live to maturity. No changes occurred in the hens. The cocks showed evidences of hastened maturity in hypertrophy of the testes and combs as compared with the control. He confirmed these findings two years later, but in his second series did not obtain any symptoms until five months after the operation and no effects on the general development until nine months after. He also obtained similar results in rats.

Horrax found that total pinealectomy was possible in guinea pigs and rats, but not in cats, dogs and rabbits. Pinealectomized male guinea pigs showed a hastened sexual development manifested before puberty by a relative increase in size and weight of the sex organs. On microscopic examination, sections of the testes and seminal vesicles showed a more advanced physiological state than the controls before the age of maturity, though this was not as marked as would be expected. Very few differences were noted in animals which were experimented on after they had passed maturity. There was no great variation in the body weights of the subjects and the controls and not much between

the male and female in this respect. In keeping with the findings of other investigators, there were no changes in the size or weight of the sexual organs in the female, either on gross or microscopic examination. The pinealectomized females appeared to show a tendency to breed earlier than the controls of the same weight and age. He also obtained some evidence of hastened maturity with rats after the removal of the pineal gland.

Contradictory results with extirpation were obtained by another group of investigators. Boese and Exner, by the cautery method in 1911, did not obtain any results following the removal of the gland in a series of ninety-five rabbits, only six of which survived to maturity and in these nothing could be demonstrated as abnormal. Biedl's findings in the following year confirmed this.

Dandy, after several attempts at extirpation by the old methods, finally succeeded in a complete removal of the gland by a new method which consists in approaching the field through the section of the corpus callosum, thereby obviating trauma at the site of operation. He proved by sections of the surrounding tissue that no portion of the pineal had been left behind. He did not have any mortality in any of his animals. His results led him to believe that the pineal gland is apparently not essential to life and seems to have no influence on the well being of the animal. Following the removal of the pineal, he observed no sexual precocity, indolence, adiposity, emaciation, somatic or mental precocity, or retardation. He feels that his experiments have yielded nothing to sustain the view that the pineal has any endocrine function of importance in either very young or old dogs. He also examined various ductless glands microscopically and macroscopically after the operation and failed to find any abnormal changes anywhere. In harmony with this, Fenger found that extirpation of the pineal had no influence on the health of cattle, sheep and lambs. Adler claims that the pineal does not exercise in the frog the same functions which were indicated by Foà in the chick.

FEEDING EXPERIMENTS

There have been a limited number of feeding experiments with the pineal, but without furnishing any absolute findings as to the real physiological action of the gland. De Cyon, Howell, Boese and Exner, Dana and Berkeley, Fenger and also Cushing

obtained negative results on blood pressure and the circulation with intravenous injections of the aquaeous extract. Jordan and Eyster found no action on the pulse or on the excised heart as a result of their work and only a slight fall in the mean arterial pressure due to dilation of the intestinal arteries with a moderate and transitory diuresis and glucosuria. Horrax obtained a relatively slight but constant fall in the blood pressure. Intravenous injection caused no increase in the flow of cerebrospinal fluid. Dixon and Halliburton also found that there was a lowering of the blood pressure with large doses, but none with small doses. Ott and Scott reported a vasodilatation in the male genitalia of cats; there was first a lowering of the arterial pressure, then a rise, causing glycosuria, diuresis and increased kidney volume through vasodilatation, also a slight effect on the contractile power of the uterine and intestinal walls.

The effect of feeding pineal on the body weight and mentality was studied by Dana and Berkeley. These observers, using the glands of young bullocks, noted that intraperitoneal injection of pineal extract produced a marked increase in size and weight in guinea pigs, rabbits and kittens. In the latter animals, there was also a rapid growth in intelligence and resistance to intercurrent disease in the subjects over the controls.

Recent work by McCord strengthens their findings and tends to show that the feeding of pineal extract to young animals produces changes which are similar to those which were thought to be due to deficiency of the gland, and are contrary to the belief that the pineal secretion holds in abeyance too rapid somatic, sexual and mental development in early life. McCord observed that the feeding of fresh pineal gland produced a distinct increase in the general distribution of adipose tissue and in the size of the animal, this never going, however, beyond that of the adult. He noted that the effect of the pineal became less as the animal approached adult size, becoming inert after maturity had been reached. There was at no time any tendency to gigantism. There was a perceptible difference in intelligence between the subjects and the controls. The pineal-fed puppies were one month ahead of the controls in their habits; they were the first to learn to lap milk, to respond to call, and the first to be able to find their way back to the kennels. When the experiments were discontinued, the pineal fed puppies were

more in demand than the controls, the purchasers having no knowledge of the investigations. Some of the subjects were autopsied and microscopical examinations made of the testes; these showed maturer and larger tubules than were found in controls of the same age. In these experiments, better results were obtained by using the pineals of cattle which had not yet reached maturity. The response was more definitely manifested in males than in females. McCord concluded that feeding of pineal leads to a more rapid growth than normal and determines an early sexual maturity.

E. R. Hoskins, on the other hand, did not obtain any effect on growth or body weight by feeding pineal to albino rats.

The only feeding experiments with children are those reported by Dana and Berkeley which were undertaken by Cornell and Goddard. In the first joint report, the latter recorded the effects of pineal feeding in a series of twenty-five subjects and a like number of controls. All the children were delinquents. It was found that the gland was of benefit in cases of simple retardation without any organic changes, but useless in mongolians, congenital idiots, or defectives of 15 years of age. The beneficial results were in inverse proportion to the degree of physical defect present; the greater number of stigmata in the patient, the less the effect, and vice versa. There was an increase in mentality and physical development in the subjects, except in the weight, in which there was a slight reduction below that of the control. The authors felt that they could not be certain of any mental defect in the children which might be ascribed to either deficiency of the pineal secretion or to apinealism.

Berkeley found that when pineal gland was fed to babies, it caused an increase in metabolic activity as evidenced by an increase in nitrogen elimination in the urine.

Goddard in a later communication modified the original conclusions as a result of the further observations on one of the girls in the series. This subject was 8 years old at the onset of the original investigations, with a mentality of 3 years and at the close, she tested 4, a gain of one year in four months. Because of this improvement in mentality, she was selected for further observations. She was studied, weighed and tested under ordinary institutional environment and then taken to the laboratory to live under a special diet and care. After her normal curve

had been established, she was fed pineal for six months; this was then discontinued and she was placed under observation for another six months. At the time of the second report, it was fifteen months since the experiments had ceased and twenty months since the last administration of pineal gland. There were no marked changes in her growth curve during the period of feeding nor was there any after effect noted in the physical condition. Her mentality had reached the level of a 5-year-old child during the course of the second investigation, but had not progressed any further than this for months previous to the time of the report. Goddard therefore felt that the effects of pineal on this case were nil. He also incorporated observations on two cases of Mongolian idiocy, confirming his earlier findings as to the inefficiency of pineal in this condition.

PINEAL NEOPLASMS

There are several varieties of tumor of the pineal which have been found on post-mortem examination. The most frequent type is the pineal cyst which can be subdivided into two groups: (a), involution, formed by the degeneration of areas of pineal substance due to sclerosis of the blood vessels and (b), retention, arising from the recessus pinealis and lined by ependyma cells, the latter distinguishing this group from the first.

The next frequent variety of tumor is the teratoma. This type occurs almost exclusively in children under 15 years of age, Neumann's patient of 27 being the only reported exception. This class is found in the most anterior portion of the gland and has led Askanazy and others to ascribe their origin to the fundament homologous with that of the parietal eye of the lower vertebrates. Marburg confirms this theory by his discovery of the remains of the "nervus parietalis" and "ganglion parietale" in this portion of the gland, in the neighborhood of the teniae habenulae. The elements of this tumor are those generally contained in teratomata. Cases of teratoma have been reported by Weigert, Coats, Falkson, Ogle, Gauderer, Gutzeit, Hueter, Frankl-Hochwart and Bailey and Jelliffe.

Among other varieties of tumor reported and classified by Marburg as mixed tumors are glioma (Duffin, Lawrence), sarcoma, carcinoma and psammoma (Friedrich, Blanquinque).

Ziegler considers that the most frequent and common abnormalities of the pineal are hyperplasia, cyst formation and

psammoma. Hyperplasia should not be confused with true hypertrophy of the gland in which there is an increase in the size of the cell.

Other diseases than tumor which are mentioned in the literature are hemorrhage (Simon, Ziegler), abscess (Birsch, Hirschfeld quoted by Marburg), syphilis (Lord), tuberculosis, and xanthochromia. The latter are usually associated with an increase in the cellular and protein elements of the spinal fluid, particularly fibrinogen, this producing the so-called "massive coagulation" consisting of a yellowish fluid with a small number of lymphocytes and a large number of red blood cells.

SYMPTOMS OF PINEAL TUMOR

There are seventy cases in the literature which have been accepted as being those of neoplasms of this gland. Bailey and Jelliffe in 1911 collected all the cases (59), analyzed them in an admirable paper and added one of their own; since then about ten more have been published. Of the sixty studied by these authors, seventeen were in children under the age of 14, thirteen of these being in boys and four in girls, thus disproving the statement of some that this condition is limited to the male sex. Unfortunately the majority of the cases were reported with inadequate histories, statistics and clinical observations so as to render a restudy of them very difficult, especially in the light of present day endocrinology.

Neoplasms of the pineal give rise to two groups of symptoms, according to Bailey and Jelliffe: (1), neurological and (2) metabolic. This classification is the most feasible one and may include Marburg's latest headings of (a) general symptoms due to pressure and (b) neighborhood symptoms under the neurological, and his third class of constitutional symptoms under metabolic.

Both groups of neurological and metabolic changes arise from the encroachment of the neoplasm on the intracranial contents and are indicative of disturbances in pressure, in placement and in destruction of tissue. Such changes may occur at any time of life, but when they take place before puberty, they give rise to metabolic symptoms and are referable to disturbances of the secretory function of the gland. They may have neurological signs associated. Lesions occurring in adult life

produce neurological symptoms and never any metabolic, as the pineal probably does not function after puberty.

The neurological symptoms are those usually found as a result of intracranial pressure from any tumor of the mid-brain or of the corpora quadrigemina and are exceedingly difficult to diagnose, per se, as arising from pineal disturbances. The first symptom is usually headache, which varies in location but is generally occipital at the onset, becoming diffuse later. There is neuralgic shooting pain. Vomiting, vertigo and optic neuritis are also present. Drowsiness is noticed, the degree depending upon the amount of hydrocephalus present. Symptoms referable to the eye muscles are lateral or vertical nystagmus, paralysis of individual muscles of the eye and other ocular motor disturbances. Ataxia may assume a prominent part in involvement of the cerebellum.

Enlargements of the pineal gland, because of its anatomical position, will produce primarily circulatory disturbances with a subsequent formation of various degrees of hydrocephalus. The development of the hydrops may be very rapid or very slow, being conditioned by at least two independent factors, pressure on the veins of Galen and obstruction to the aquaduct of Sylvius. Cushing feels that any pineal tumor of any considerable size must lead to a secondary hydrops ventricularum and to stasis of the posterior lobe secretion. Bailey and Jelliffe think there is reason to believe that growths in this region further stimulate the production of cerebro-spinal fluid and that this may enter as an additional factor in the development of hydrocephalus.

The metabolic symptoms are: (a) adiposity, (b) sexual changes, (c) cachexia. The adiposity is independent of the character of the tumor and is not confined to teratoma. It is difficult to determine in many cases whether the adiposity is due to disease of the pineal or of the hypophysis, as there is marked hydrocephalus of the third ventricle with both. It has not as yet been determined whether or not pineal tumors alone can produce adiposis apart from a hydrocephalus of the third ventricle. The three leading views on the production of the adiposity are: (1) That put forth by Marburg, that it is an expression of overfunctioning of the pineal gland, (2) that it may be due to a pineal tumor supposedly producing a hypopinealism

and (3) Cushing's contention that it is due to secondary changes in the hypophysis brought about by pressure exerted by the hydrocephalus. Against Marburg's idea of a hyperpinealism is Kidde's statement that "adiposity occurs in so many other conditions and its mode of production is still so obscure, that we must conclude that it is uncertain whether hyperpinealism in man ever causes adiposity per se."

As the pituitary body was not examined in the majority of cases of pineal tumor in the literature, it cannot be shown by proper statistics just what relationship this gland holds to the syndrome. In some cases, the hypophysis had been much compressed, but in other instances, the structure was normal. Bailey and Jelliffe feel that in a hydrocephalus there is pressure exerted on the infundibulum and therefore on the pituitary. Cushing thinks that as any pineal tumor of any appreciable size leads to a secondary hydrocephalus, it may ultimately be expected to give symptoms of pituitary deficiency. He makes the statement that symptoms of supposed hypopinealism have been observed only in connection with tumors of the gland which have led to an obstructive hydrocephalus, and this, of necessity, to secondary hypophyseal disturbances. While he considers that the adiposity is an expression of hypopituitarism, Cushing concedes that pineal enlargement, whether associated with hyperplasia or hypoplasia, may be provocative of obesity.

Schafer thinks the condition found with pineal tumors suggests the probability that the adiposity is due to hyperpinealism and similar to that found with hypopituitarism.

Sexual changes—The sexual syndrome accompanying pineal tumors consists of (1) an early sexual development, evidenced in enlargement of sexual organs, pubic hair, general body hair and change in voice to that of the deep masculine type; (2) precocious mental development manifested by maturity of thought, mind and speech; (3) general body overgrowth to the extent that a child of 5 or 6 years may have the appearance of one of 11 or 12. This syndrome is not limited to boys, but when present in girls, it does not involve any primary sex changes, but does show secondary changes as menstruation, enlarged breasts and pubic hair. Masturbation may be present in both sexes. Bailey and Jelliffe state that the reason for this syndrome may be one of the following: (a) Early sexual development may be anal-

ogous to acromegaly, in other words, that it is due to hyperpinealism; (b) Askanazy's suggestion that teratomas are false conceptions in which one might expect an increase in the pineal secretion; (c) Precocious sexual development may be an early irritative sign of a purely nervous character acting through the pars nervosa sympathetica, which is very rich, and that later, increase in pressure brings about degeneration or atrophic phenomena (Bailey and Jelliffe); (d) Due to dyspituitarism which results from lessened pituitary secretion following pressure on the infundibulum (Cushing).

Cachexia—It has not as yet been determined whether or not this has any relation to the pineal, to the hydrocephalus or to the tumor itself. Marburg thinks that the cachexia is due to apinealism, while McCord considers it a secondary symptom.

Pellizi, Schuller, Frankl-Hochwart and others described this syndrome, to which some have given the name of macro-genitosomia praecox, as occurring in cases which, upon autopsy, showed a tumor of the pineal gland. It was the general consensus of opinion among the early observers that these symptoms were the clinical manifestations of a destructive lesion of the pineal gland, most usually a tumor, which could be interpreted as the end results of a lessened pineal secretion (hypopinealism), on the assumption that the function of the gland was to inhibit the overgrowth of the sexual organs and instinct beyond the normal.

Since then McCord, following his repeated experiments of feeding pineal gland to animals, has raised a pertinent question as to the correctness of this interpretation. He makes the assertion that the pineal syndrome is due to an increased pineal secretion (hyperpinealism), claiming that the cells of the neoplasm involving the pineal may retain some of the metabolic and other functional characteristics of the normal gland from which they are derived. He calls attention to the possibility of the pineal tumor leading to an active, constructive, stimulating influence as being suggestive in the cases reported by Marburg, Polavani, Oestreich and Slawyk, and Askenazy. The last three observers also felt that there was an increased activity of the pineal secretion, for Oestreich and Slawyk stated that early sexual maturity could be regarded as being due to a hyperpinealism, analagous to the relationship of acromegaly to hyperpitu-

itarism. Askenazy's idea of teratoma as false conceptions would make one expect, primarily at least, an increase in the secretion of the pineal cells. To strengthen his contention still further that tumor cells frequently function after the manner of the cells from which they arise, McCord quotes the findings of Weber, Rolleston, Wheeler, Ribbert and others that functional activity of tumor cells are not infrequent. Hinds Williams in 1910 reported three cases of pineal tumor, in which he noted the similarity of these tumor cells in many instances to those of the normal pineal gland.

Morse analyzed the cases in the literature as to the time of the appearance of the first sign of pineal involvement and arrived at the conclusion that there was no general rule governing either the time of onset or the type of symptoms. The symptoms of physical and sexual over-development may precede those of the tumor, as in the case of Oestreich and Slawyk; or the physical signs may appear alone, as in the case of Frankl-Hochwart; or the disturbances due to the tumor may be the first manifestations, as in Raymond Claude's case. The time of appearance of symptoms varied from a few years to four weeks (Stanley's case) from the onset to death.

Timme feels that disturbances of the pineal play an important part in the pathogeny of progressive muscular dystrophy, basing his opinion upon the shadows of the pineal obtained by X-ray examination of the skull, and by changes produced by the tumor and by diseases of the pineal on muscles and tissues of the body. He sees a marked resemblance in character between these changes and the signs of progressive muscular dystrophy. He could discern shadows in the pineal gland and a crowded pituitary fossa in patients whom he considered to be in the transition stage from the second to the third periods in his new pluriglandular syndrome. Timme thinks that the onset of this syndrome is well before puberty, the symptoms of fatigability appearing and becoming more marked with an increase in weight and a rapid growth in height. In analyzing the symptoms of pineal disorder as found in the literature by Bailey and Jelliffe, Timme considers the following as being due to progressive muscular dystrophy: hypotonic condition of upper and lower extremities, great weakness of lower extremities with loss of muscular power, marked disturbance in gait of a waddling char-

acter, weak general musculature, contractures of extremities and muscular fatigue. He cites cases of Bailey and Jelliffe, Massat, Feilchenfeld, Nothnagel, Zenner, von Hoesslin, Hempel, Jonkovsky, Marburg, Hart, Raymond, Claude and Howell. Gowers is also of the opinion that progressive muscular dystrophy is a disease which has its inception before the age of 6 years and that the earlier it appears, the more severe it is.

Schuller was the first to demonstrate the identity of shadows in the pineal region by an X-ray examination of the skull with deposits in the gland. These shadows are due to calcification of the pineal gland and are quite frequently found. The characteristic appearance is a more or less dense shadow varying in size from a pin point to that of a split pea and situated 4 to 5 cm. behind and slightly above the level of the tip of the posterior clinoid process. In the vast majority of instances, this calcification is only an exaggeration of the deposit of brain sand normally found in the pineal gland of adults and is accordingly more frequently found with advancing age. It is significant only when present in children, as it then shows a premature calcification of the gland which would be manifested clinically by the syndrome of hypopinealism.

Treatment of the tumor is unsuccessful. Horrax and others have attempted puncturing through the corpus callosum, but without any beneficial results. While the removal of the tumor, according to McCord, may be surgically possible, it is not to be considered in clinical cases as a promising form of treatment except under very unusual circumstances.

The relationship of the pineal gland to various types of insanities has been studied by Farrant. The work was based upon an assumption that toxemias play an important role in the insanities and that the endocrine organs suffer as a result of the toxemias. Faulty action of these glands in turn might be expected to add further to the abnormal chemical environment of the brain cells and thus aggravate the mental disorders. His deductions were based upon a study of sections from 3000 autopsied cases. The pineal gland reacts to certain toxemias by an ultimate fibrosis. In primary and secondary amentia, atrophy of the pineal gland, hypophysis and thyroid were found in three classes of cases. In dementia praecox, an alteration was found which varied with the duration of the disease. Alterations and

degenerations were noticed also in dementia cases. In the manias, melancholias, maniac depressions and other insanities, changes, either hypertrophic or atrophic, were found in the thyroid, sexual and pituitary glands.

Clinical examinations were made in 1000 cases to determine from physical signs and symptoms the condition of the endocrine glands. Manifestations of pineal disorders were noted in children and adolescents. Alterations in the size of the testes were found associated with other endocrine gland changes. The suggestion is made that if the glands are found to be atrophied, they should be compensated for by administration of the corresponding endocrine gland product; if hypertrophic, they should be allowed to involute. It is questionable how much benefit could be derived in pineal cases.

FUNCTION

Many hypotheses and theories have been advanced as to the probable function of the pineal gland.

It is generally accepted that the greatest post-natal development in the gland is in the first few years of life and that if it is at any time functionally active, it is so during that period. One group of investigators believe that the pineal produces a secretion which inhibits the growth of the body and restrains mental and sexual development from exceeding the rate accepted as normal for pre-adult life. This inference arises from the occurrence of the sexual and physical precocity accompanying the invasion of the pineal gland by a neoplasm, it being assumed that such a tumor destroys the pineal tissue and that the resultant metabolic and neurological disturbances occur from lack of pineal secretion. This interpretation is attacked by McCord and by Dana and Berkeley, who found that these same symptoms of supposed hypopinealism were produced by feeding pineal gland to animals; these investigators accordingly are strongly of the impression that the symptoms of sexual and physical precocity are due to a hyperpinealism instead of to a diminished secretion.

De Cyon thought that the gland had a mechanical function of regulating the outflow and inflow of cerebrospinal fluid of the third ventricle. This theory has not been substantiated, although the finding of striped muscle fibres in the pineal of cattle by Nicolas and by Dimitrowa would attach some significance to this idea of a valve action.

McCord and Allen demonstrated the presence of an active substance in pineal tissue by their feeding experiments with tadpoles in which they found that the gland produces a substance capable of controlling pigment cell changes, a fact which, they suggest, may be correlated with a primitive visual function of the pineal.

Dana and Berkeley advance the hypothesis, which has not been substantiated, that the pineal furnishes a ferment or catalytic agent, facilitating the exchange of nutrient material in the cells of the brain.

Cushing considers the pineal as a gland of internal secretion having an unquestionable relation with other endocrine glands. He thinks that there is an antagonistic action between the hypophysis and the pineal on sex and development.

Pende, Constantini, Urechia and Galascercu consider it an endocrine gland because of the granular nature of the pineal cells.

Dandy does not ascribe to the pineal any endocrine qualities. Gley does not include this gland in his book on "Internal Secretions." Park feels that it may be considered as an organ of internal secretion only on the strength of other organs of doubtful significance having been subsequently found to possess internal secretions.

It is exceedingly difficult to arrive at any conclusive opinion as to the functional activity of the pineal. There has been nothing substantial brought forward to show that it possesses an internal secretion. The experimenal work has failed to prove that it possesses a function and no experimental studies are so complete as to allow comparison with the very striking syndrome seen clinically. If the views of Horrax and others that the pineal controls the inhibition of sex growth were true, then pineal feeding should postpone adolescence, but observations by Dana and Berkeley and by McCord produced the opposite. On the other hand, if the feeding results of McCord are correct, then the extirpations of Dandy and Horrax ought to have brought overwhelming evidence of a pineal function. In the final analysis, it seems justifiable at the present time to state that our knowledge of the function of the pineal is more problematic than accurate.

ORGANOTHERAPY

Rational and scientific treatment by means of pineal gland substance or extract is at the present impossible, in the light of our meagre knowledge of the functions of the gland. Any organotherapy with this gland must remain experimental until this uncertainty is removed by future investigations.

Dana and Berkeley used gland substance prepared by taking twelve pineal glands of 2 to 3-year-old bullocks, ground with an equal amount of milk sugar and distributed in 100 capsules. Each capsule corresponds to 150 pounds of bullock live weight. The physiological dose for a child of twenty-five to fifty pounds was regarded as one to two capsules daily after meals. For children who cannot swallow capsules, they may be opened and spread on bread or given directly.

The use of pineal extract in doses of one-twentieth of a grain two or three times a day is being advocated by some for delinquent children who do not show any deficiency in the thyroid or pituitary hormones, and without any organic changes, to be administered alone or in conjunction with the other gland extracts.

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CO-OPERATION BY INTERNIST AND SURGEON IN THE TREATMENT OF GRAVES' DISEASE

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It is generally recognized that exophthalmic goitre is by no means an uncommon malady. It is likewise known that patients suffering from this hyperthyroid activity are distressed by many disagreeable and disabling symptoms. These are sufficiently unpleasant even in mild cases, but may progress to a state of such severity that life itself becomes endangered. It is also known that proper treatment is oft attended by brilliant cure, and in the majority of instances, at least, by striking amelioration of symptoms. It is the purpose of this article to consider briefly by what method of treatment or combination of methods, this consummation may best be realized.

In a general sort of way, treatment may be divided into:

1. Operative procedures;
2. Medical measures, including Roentgen radiation;
3. A judicious combination of 1 and 2.

1. *Treatment by Operation:* At the outset it must be frankly admitted that the most rapid, permanent and spectacular results are achieved by surgery. There can be no question of such a contention. No medical maneuvers, however skillfully executed, can quite approach the prompt decisiveness of surgery. Consequently and naturally, some surgeons insist that operation should be the only method employed. They would not concede a place for medical procedures. And, indeed, a few internists frankly agree with them, and are sincere in this conviction, to the extent that they make it a rule to transfer their hyperthyroid patient to the surgeon as soon as they have made the diagnosis. No issue could be taken with this viewpoint, if the surgery of Graves' disease were a comparatively harmless procedure attended by a very small, negligible mortality. Terry recently reports 264 cases of hyperthyroidism operated by him with 10 deaths, a mortality of about 4 per cent, and modestly considers

this rate higher than it should be. The Mayos, Crile, Halsted, Kocher of Berne and many others can probably claim equally excellent results. And in the hands of such experts thyroid surgery is reasonably safe. But it would probably be conservative to estimate the average mortality of the great majority of surgeons as at least 10 per cent, and it is probably much higher. Thyroid surgery is difficult surgery. It demands technical skill, not only, but what is even more important, a ripened judgment as to the best time to operate, and how much to operate; whether merely to ligate one or more thyroid arteries, or remove one or both lobes. By and large, therefore, we have to deal with a mortality of at least 10 per cent, with an item, therefore, of considerable significance. If surgery were our only resort, and no other measures available, we would necessarily have to be content. But certain other procedures are available and not unworthy of consideration.

2. *Medical Measures including Roentgen radiation:*

(a) *Prolonged Rest:*

Physical exertion, mental strain and emotional excitement are all injurious to the hyperthyroid patient; obviously, then, the removal or reduction of these factors by "rest cure" constitutes a form of therapy of considerable value. It is beside the point here to elaborate the details of such procedure. It requires painstaking attention to "small things" and in their execution demands the services of the unusual nurse, one who combines tact with firmness, charm with skill, who finds delight in ministering to the mental and physical comfort of the patient, who radiates cheer and inspires confidence. The catabolism of these patients is excessive. Their metabolic fires burn feverishly; consequently they lose weight. Even though their appetite be excellent (which it usually is) and their caloric intake high, their combustion furnaces spare but little for body weight. Consequently they feel warm in rooms where the normal person feels chilly. Absolute rest in its best sense, is therefore an important form of treatment. It helps to slow metabolism, reduces diarrhoea, diminishes sweating, soothes the nervous emotional excitability, quiets the thyroid heart and adds body weight. A real rest cure, skillfully managed—even without medication or X-rays—is often all that a mild case requires for restoration to normal health, and moderately severe cases undergo astonish-

ing improvement ofttimes. This medical measure has, however, decided limitations, chiefly social and economic. A stenographer, a clerk, in fact any patient who must work for a living and continue doing so, can afford neither the time nor the expense involved. For it takes much time and some money if it be done properly. Nor can a mother with many domestic cares and responsibilities be permanently benefited by rest cure, if she carry her worries into the rest cure, and if she knows that she must return afterwards to the same physical, mental and emotional strain that contributed to her illness. This form of medical treatment, therefore, though it possesses real merit, must be restricted to selected cases.

(b) *The ice bag:*

Cold applied to the vascular goitre in the form of a collar ice bag encircling the neck, and an ice bag over the heart, is a simple measure not to be overlooked. Though it is difficult to estimate just how much good it accomplishes, it would seem to be beneficial and is frequently greatly appreciated by the patient. Parenthetically, it may be stated that the ice bag must not be applied continuously for too long a time, or it may produce consequences of its own that are quite unfortunate, such as painful induration of the skin, neuritis, and even, in extreme instances, sloughing.

(c) *Diet:*

A high caloric diet—2500 to 3500 calories—helps to restore weight and strength, and is an important adjuvant to any form of treatment, even if it be preparatory to operation.

(d) *Medicine:*

Although numerous medicines have been employed from time to time, the vast majority have been deservedly discarded, and a very few remain for consideration. By far the most important and effective is the Forchheimer combination of quinine hydrobromate 0.30 (gr. v) and ergotin 0.065 (gr. 1), given in gelatin-coated pills, two to four times daily. Many who have given this preparation a fair trial are decidedly impressed by the patient's improvement both subjectively and objectively. One is readily deceived in drug therapy and must be cautious in drawing conclusions, but my limited experience coincides absolutely with the claims of Forchheimer. I have had occasion to employ this drug where, due to several circumstances, the patients were

unable to rest, to take X-ray treatment, or to undergo operation. The cases were striking examples of Graves' disease, but not of extreme severity. Quinin hydrobromate and ergotin was therefore the only treatment administered. There was no change in environment and it seems reasonable to ascribe improvement to the drugs mentioned. A fair degree of benefit can usually be anticipated from the exhibition of this medicine, but cure can rarely be attained by its use alone.

Certain other medicaments such as sodium cacodylate, advocated by Llewellys F. Barker to slow metabolism, digitalis for a weakened myocardium, bromides, etc., aid indirectly, and are not to be neglected, but are not of prime importance.

(e) *X-ray applications to the thyroid and thymus:*

This form of therapy is a notable contribution. In a fair number of cases it can accomplish cure, and in the majority of instances, perhaps, it produces surprising improvement. Occasionally no benefit results. If administered in proper dosage and at proper intervals by a roentgenologist experienced in its application, it will usually prove itself worthy a trial. In most instances radiation of the thyroid gland suffices; sometimes better results are obtained from radiation of the thymus. The role of the thymus in Graves' disease is not yet fully understood, but that a relationship exists at least in some cases, can no longer be denied. I have seen diarrhoea cease, the pulse drop from 120 to 80, and a gain of 20 pounds result from 3 to 5 roentgen treatments. Under such conditions there can surely be no indication for surgery.

Summary of Medical Treatment:

In a general way, then, it would seem reasonable to conclude that the medical measures described above—sometimes one or the other alone, more often a combination of all of them—will cure Graves' disease not infrequently; and the majority of cases will show an appreciable improvement. Many competent observers and prominent internists will and have corroborated this assertion. It follows at once, and this is important, that some cases of Graves' disease do not require surgery. Surely, then, in communities where the expert thyroid surgeon is not available, medical treatment deserves and demands a careful and serious trial.

3. *Treatment by Internist and Surgeon:*

Terry writes: "The treatment of exophthalmic goitre should be carried out by the physician and surgeon co-operating for the good of the patient . . . the surgeon who rushes into the operative treatment of exophthalmic goitre, without a careful study of the individual case, is just as culpable as the physician who permits his goitre patient to acquire a permanently damaged heart and nervous system through fruitless medication." The above quotation is the truth in a nutshell. I may have greater faith in medical treatment than the author just quoted, but however that may be, the best results for the individual patient will be attained most often by early consultation between the internist and surgeon. Just when medical measures should cease and surgery begin is sometimes difficult to determine. This constitutes a borderland zone, where there exists legitimate room for difference of opinion. Perhaps the wisest decision at such a time would be as follows: If an experienced, reasonably safe thyroid surgeon is at hand, let him operate; if he is not available, postpone surgery a little longer; 10 to 20 per cent mortality is not to be trifled with, while less dangerous means may still do good.

Conclusions:

1. The treatment of exophthalmic goitre by the experienced thyroid surgeon leads most frequently to rapid and permanent cure.

2. The average non-expert surgery of Graves' disease is, however, accompanied by a heavy mortality.

3. Rest cure, certain medicines, and X-rays, skillfully administered, will cure some cases and improve the majority, without the help of surgery.

4. The best results are obtained by early consultation in each case between internist and surgeon, and by cordial co-operation throughout the course of treatment, whether that be purely medical, purely surgical, or combined.

5. Surgeons should not rush their patients to operation. Internists should not try medical measures too long.

EARLY SYNOSTOSIS OF THE EPIPHYSES WITH DWARFISM IN PUBERTAS PRECOX

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Amongst the many cases (about 150) of precocious puberty which have hitherto been published, only a limited number have been examined with X-rays in regard to the epiphyseal lines. As it has a certain importance in connection with the problem of the influence of the ovarian and testicular hormones on growth, it may possibly be of some interest to publish a history of a case of pubertas precox, in which there was synostosis of the epiphyses at an abnormally early stage, probably already at the age of 7-8 years.

In the literature that is available to me, the following cases have been found in which X-ray examinations of the epiphyses have been reported.

P. Linser mentions a boy, aged 5½ years, with pubertas precox and wholly abnormally early development; he was 138 cm. in height. Radiograms showed that the ossification corresponded to the age of 15 years. Hudovernig and Popovits describe also a 5½ year old boy; he was 140 cm. tall, but the proportions were infantile. Radiograms showed a far progressed ossification of hand and foot, the metacarpal bones completely ossified and the epiphyseal fissures narrower than normal. On the whole, the ossification corresponded to the age of 15 years. In a case of Neurath's, in which the menstruation had begun before the 6th year, the ossification corresponded in the radiograms to that of 10-11 years. J. Lenz describes a case in which the mammary glands had begun to develop at the age of 3 months and the menstruation began at 4 months. In the X-ray plates taken at the age of 6 years is seen, both in the upper and the lower limbs, ossification corresponding to 18 years. B. Wolf mentions that in a girl of 4 years with precocious puberty he has found the radiogram of the hand corresponding to an age of 10 years. Her height at the beginning of the development increased at an abnormal rate, but at the age of 12-14 years, the growth in length seemed to begin to stop. Josefson mentions that in a 12 year old boy with strikingly early bodily development the ossification corresponded to the age.

THE AUTHOR'S CASE

O. F., 13½ years old, is the daughter of the manager of a factory. There is no history of familial predisposition; the patient has no sisters or brothers. When she was some few months old, bleeding from the vagina appeared and since that time she has had it regularly every fourth week, without interruption; at first it was scanty, but later, normal in amount. During menstruation

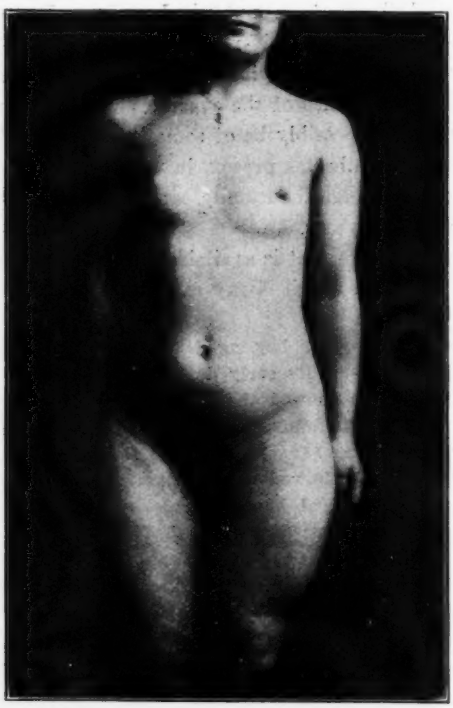

Fig. 1. Patient 13½ years of age showing precocious puberty.

there has been headache but no other molimina. Even from early childhood she has had noticeably large breasts; they were largest at the age of 6-7 years, having since decreased somewhat in size. For at least 2-3 years, perhaps longer, the mother has remarked axillary and pubic hairs on the patient. The hips and thighs have always been rather large. The patient increased much in height up to the age of 7 years; she was then strikingly tall and powerful for ner age. Since then the growth has wholly stopped. Of late she

has not been stouter, but rather more slender. Several times she has had hemoptyses without demonstrable lung disease. The physician of the patient has considered them as a kind of substitute for menstruation.

My examination of the patient (24/1, 1918) showed the following: She was 131 cm. in height. The lower limbs were strikingly short in relation to the trunk. The head had a normal form. The expression of the face was somewhat older than corresponding to the age. The hair of the head was normal. The axillary and pubic hair was well developed. The breasts were somewhat larger than ordinarily corresponding to the age, not of the pointed puberty type, but rather of the somewhat flaccid type found in virgins of 30-40 years. There was no goitre. The fat on the hips, thighs and, to some extent, on the legs, was abundant, but the patient was otherwise not obese.

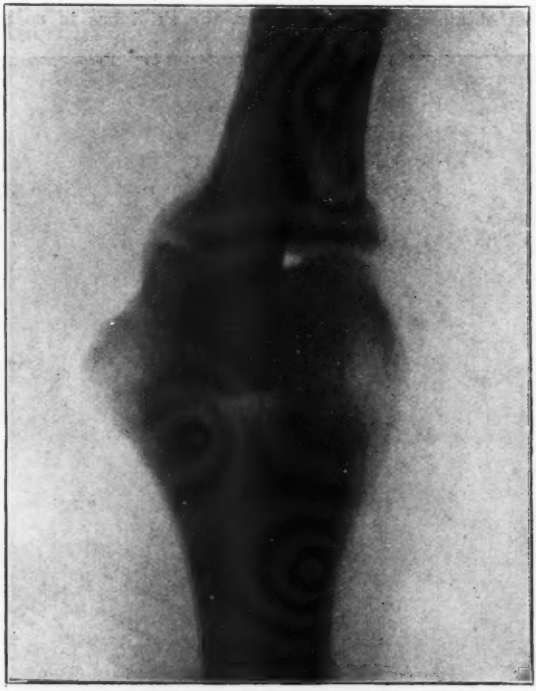

Fig. 2. X-ray photograph showing closure of epiphyseal junctures of humerus, ulna and radius of girl shown in Fig. 1.

X-ray examination showed a normal sella turcica. All the epiphyseal fissures of the upper and lower limbs were seen to be completely grown together. Examination of the nervous system did not show anything abnormal. There was no Chvostek's sign. The voice was infantile. Aside from the attributes mentioned, the patient makes an absolutely natural, childlike impression. From information obtained from the mother, the child has in no manner

Fig. 3. X-ray photograph showing closure of epiphyseal junctures of bones of hand and wrist of patient shown in Fig. 1.

showed an early erotic development; she has not been old-fashioned in her ways of thinking. She attends school and progresses well.

There is no doubt as to the symptomatological diagnosis: it is an indisputable case of pubertas precox. The characteristic

symptoms are to be found: menstruation even from the first year, early development of mammae and probably pubic hairs. In opposition to many of the previously published cases of precocious puberty there does not appear to have been any precocity in the mental development; this feature shows among other things, however, that in pubertas precox as in infantilism there may be a dissociation between somatic and psychic evolution. There are some cases in which they appear parallel, but others where the psychic evolution is normal, while the somatic is either advanced or retarded. Another remarkable feature is the hemoptyses of the patient, which have no ostensible source in a pulmonary disease. It is not improbable that the opinion of the patient's doctor was correct, that these hemoptyses have amounted to vicarious menstruation. Finally, it may be noted that the patient's mammae were largest at the age of 6-7 years, but later decreased in size. Lenz reports a similar finding. In that feature may certainly be seen an analogy with what takes place much later in normal persons.

While the symptomatological diagnosis, pubertas precox, is sufficiently certain, it is much more difficult in a case such as this to demonstrate what is the etiology of the disease. It is indeed most probable that the cause of the evolution of precocious puberty lies in either the ovary or the interstitial testicular gland. But as is well known, there is a series of cases of pubertas precox in which there were found tumors in the adrenal gland or in the pineal gland (in some cases tumors in the genital gland itself). Possibly these cases are to be referred to a general abnormal foundation; but many things make it probable that substances which are secreted from the tumor stimulate the endocrine sexual gland to augmented secretion. In the cases in which autopsy or operation has been performed there have constantly been found tumors in one of these three localities, excepting only some few cases in which there has been found hydrocephalus.

Some years ago I reported a case of precocious puberty in a boy, aged 1 year. In this patient pineal and testicular tumors could be excluded, and I was therefore most inclined to diagnose an adrenal tumor. Since then I have changed my opinion somewhat. It must be remembered that just in the cases in which the disease is caused by a tumor, autopsy or operation

will be performed. But the many who do not die of such a tumor will ordinarily live to be old; and when they die many years after the normal time of puberty, their pubertas precox will rarely be remembered; hence they will not be reported as cases of precocious puberty and appear in the statistics of such cases.

In the case described here a pineal tumor at any rate can be excluded. An ovarian tumor can not absolutely be excluded; the patient has purposely not been internally examined, since it was desired not to direct her attention too much to her abnormality, she being psychically infantile. Adrenal tumor is even not absolutely to be excluded. But it can certainly be said that a malignant tumor could not be found either in the ovaries or in the adrenal glands. And large benign tumors can not be demonstrated, external palpation of the abdomen showing nothing abnormal.

A small benign adenomatous tumor of the ovaries or adrenal glands can not be excluded. But, on the other hand, it must be considered as possible that the disease may be caused by an abnormally early function of the internal secretion of the ovaries, an early function which is not caused by a tumor, but is parallel to the hypersecretion of the thyroid gland in Graves' disease.

The features which in this case have a special interest are those relating to growth. The patient appeared to have grown abnormally much until the age of 7-8 years, when the growth stopped. In view of the fact that the epiphyseal junctures were found closed, it can safely be concluded that this closure was the cause of the cessation of growth.

This type of dwarfism is in characteristic contrast to that which is found in thyroid and pituitary diseases; in these, the epiphyseal fissures remain barely open, but for an abnormally long time. The stopping of the growth is therefore to be referred to a diminished proliferative impulse at the epiphyseal lines.

In examination of adult dwarfs, the precocious appearance of puberty may have diagnostic significance in relation to other types of dwarfism (primordial, chondrodystrophic, thyroid, pituitary and rachitic). If sufficiently good anamnestic information is afforded, the diagnosis will scarcely be difficult.

A case like this is further characteristically different from eunuchoidism. In the latter condition height will be increased, since the hormone which normally conditions the closure of the epiphyseal lines after puberty is not present. In our patient we find a diminished height, probably because the same hormone has acted too early. The case is thus a further foundation for the opinion that it, among others, is a hormone from the sexual glands which causes cessation of growth after puberty.

The case described has a further interest in regard to therapy. The patient was unhappy because she was so little and unfortunately it must be considered as totally excluded that she should grow more, since her epiphyseal fissures are completely shut. It is now a problem whether the growing together of the epiphyseal fissures could have been prevented. Both X-ray treatment of the ovaries and extirpation of one ovary must be considered. However, the operation must be regarded as somewhat uncertain and not absolutely without danger. In cases diagnosed as due to true ovarian tumor, operation must be considered as absolutely indicated, just as in cases in which an adrenal or pineal tumor can be demonstrated.

A therapeutic measure which might be interesting to try as an experiment in cases of beginning pubertas precox is administration of thymus extract. Many consider the thymus as an endocrine gland which has an effect antagonistic to the ovaries and the testicles. On the other hand, there are authors, among others, E. R. Hoskins, who think the thymus has no endocrine function. The problem is, in my opinion, unsolved. But in spite of that it must be admitted that Hoskins is right in many of his contentions. To my mind there is one series of experiments, i. e., that of Vogt and Klose, which is much in favor of an endocrine function of thymus. If it is correct that the thymus in part or as a whole is an endocrine gland, it is possible that thymus extract might be effective at the time of thymic involution. Since the extract is rather innocuous, an attempt to treat pubertas precox with it would not be absolutely without interest, although the eventual results would need to be considered with great reserve.

Whatever be the decision as regards therapy, it is desirable in every case of precocious puberty to follow the changes of the epiphyseal lines by means of frequent radiograms.

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THE RATIONAL THERAPEUSIS OF EXOPHTHALMIC GOITRE

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The art and science of medicine, as all other arts and sciences, is fraught with periods of fads, which latter constitute the *comme il faut* for the profession at large for a variable length of time. Time was when blood-letting was considered the panacea for almost every disease; this procedure has now, with few exceptional indications, gone into disrepute. Not many decades ago, wounds were considered exactly right when pints of pus would issue from them; now our patients are looked upon as infected in the presence of pus, and we endeavor to cure traumatic and surgical wounds by the clean first intention method. Again, the greater the fever in a patient, the more he was deprived of water and fresh air; modern medicine recognizes that plenty of water and fresh air are the greatest aids in combatting febrile affections. Only recently the profession at large has come to realize the fallacy of the indiscriminate removal of tonsils. The propaganda for reform in this direction is based upon the logical opinion that tonsils have their function just as the thymus and the other lymphatic glands of the body; that enlarged tonsils, provided there is no marked respiratory obstruction, serve the purpose among other functions of compensating for a deficient glandular activity elsewhere; and that their removal is not only an unnecessary procedure but physiologically erroneous. The modern nose and throat specialist, then, will judge his case on the score of respiratory obstruction and whether or not these lymphatic tissues are diseased.

And so, as we survey the periods in medicine, we find repeated examples of theories and procedures formerly considered proper, soon giving way to other theories and procedures in accordance with further physiological and clinical observation. Arts and sciences, as well as men, are susceptible to "ruts" into which they will fall and there remain for a much longer period than subsequent developments and conditions justify,

simply because it is a somewhat painful procedure requiring considerable effort, to come out into the open and accept suddenly presented views entirely at variance with habitual methods. The most important disease in which a controversy of this sort is now enacted, is exophthalmic goitre. For many years, the majority of medical men have considered this disease as one belonging to the operating table for relief. Many theories, ingenious and otherwise, have been promulgated to suit this therapeutic conclusion, and thousands upon thousands of cases have been so treated—successfully?—yes. That is, the patient usually recovers *from the operation*. But what about cure of the disease for which operation was attempted? Ah, there's the rub! The goal in the treatment of exophthalmic goitre is to secure a cessation of thyroid intoxication, i.e., the saturation of the blood with thyroid substance for the present and future, and the repair of whatever damage there has been wrought in the patient's organs and functions during the entire course of the disease. This surgery sometimes appears to accomplish for a brief few weeks' duration, but as a general rule, rarely if ever succeeds permanently in accomplishing. On the contrary, many instances occur in which, far from a diminution of thyroid intoxication on leaving the operating table, the patient's system is more than ever saturated with thyroid substance.

Exophthalmic goitre does not fall into the realm of surgery. Surgery has for its purpose the alteration or removal of an offending portion of the anatomy, a portion which has become diseased, and the removal of which will restore health and happiness to the sufferer. Appendectomy, herniotomy, tonsillectomy, prostatectomy, hysterectomy, and gastro-enterostomy are examples of perfect surgery, and I frankly admit the advisability of the surgical removal of simple (nontoxic) goitres of moderate size. In each instance the condition is strictly *local* and *local* relief means cure. In each instance the systemic sufferings are but reflexes resulting from *local* irritation, which quickly disappear on the removal of the *local* cause. Not so with exophthalmic goitre.

Surgeons who spend their time largely in thyroid work have frequently offered in support of their views the analogy of the hyperactive thyroid gland as urgent a surgical condition as an inflamed appendix. "Why remove a diseased appendix," they

argue, "and hesitate about removing a diseased thyroid?" These men fail to observe (1) that appendicitis is a local disease while hyperthyroidism has a widespread etiology, symptomatology, and physiologic relationship; (2) that the appendix is a vestigeal organ while the thyroid is a vital organ and must not be tampered with; (3) that the appendix, in appendicitis, is the seat of germ activity while the hyperactive thyroid is not infected; (4) that operative removal of the appendix renders the patient well and healthier than ever, while the total removal of the thyroid means a slow death from cachexia strumipriva, and partial removal does not cure the patient, to say the least.

It has been observed by keen clinicians that gastro-intestinal disease, disturbances in the genital organs, tonsillar and nasal affections, disturbances in the function of the suprarenal glands, in brief, a disturbed structural and physiological balance of almost any organ in the body, is prone to act as a predisposing or exciting cause of hyperthyroidism. Is it consistent, then, to attack the thyroid as a therapeutic measure? Again, many instances of established hyperthyroidism, especially the *fruste* form, are somewhat atypical in manifestations, presenting evidences of an alternating hypo- and hyper-thyroidism, or a peculiar combination of the two at the same time. In a case of this sort, the most daring surgeon must pause for lack of determination to operate, through the intervention of his conscience.

In the presence of such confusing etiological theories, conflicting pathological evidence and profound systemic changes especially referable to the circulation, the nervous system, and the metabolic balance, as evidenced by the progressive loss in weight and strength, does it not seem inconsistent to place the entire blame on the thyroid gland and to proceed surgically on the assumption that the removal of this gland spells cure, i.e., a restoration of the utility and happiness of the patient? It is admitted that the Basedow syndrome could be produced in animals and in human beings by the administration of excessive doses of thyroid substance. It is therefore conceded that most of the symptoms met with in exophthalmic goitre are produced by the presence of an excessive quantity of thyroid substance surcharging the blood, which is manufactured by the patient's thyroid gland. But whether the gland is primarily the cause and all the other manifestations are results of thyroid intoxica-

tion, or on the other hand, whether the thyroid hyperactivity is really secondary to some other cause is the question which both surgeons and internists must decide in view of the fact that the knife is far from successful in curing the disease, and also in view of the fact that it is almost universally recognized at present that the thyroid gland seems as one link of a chain of organs, and its aberration of function forms but a small fraction of the series of abnormal events occurring in all the ductless glands. Thus we have a vicious circle of a most malignant sort, engendering a type of autointoxication but little understood today.

Let us for the sake of argument assume that the diseased thyroid gland is responsible for the picture clinically known as Graves' disease; still surgery does not seem to be the cure. Remove all of a diseased tonsil and your tonsillectomy is complete and satisfactory. There will be no further recurrence; the patient is better off for its absence. Leave a part of said tonsil and usually we are in course of time confronted with the need for another operation, the remaining portion having served as a root for the regeneration of the removed tissue. Remove the thyroid, however, and you ruin or kill your patient through the resulting myxedema. Leave a portion of the diseased thyroid in order to conserve the life of the patient, and as the lingering portion of diseased tonsil, not only will it continue poisoning the body with or without a period of apparent improvement or even cure, but sooner or later the entire gland is regenerated, and we have again a full-fledged case of exophthalmic goitre.

As an evidence that surgeons are at sea regarding what method of procedure to employ in exophthalmic goitre,—a tacit implication of their indecision regarding the therapeusis of this disease,—may be mentioned the fact that during the past decade in different parts of the world and during various moments in the career of the same surgeon, surgical procedures differ, and for each method success is acclaimed. The following are a few of the most important procedures adopted:

(a) Complete thyroidectomy. Since this resulted in cachexia strumipriva in every instance, this method was rejected after some years as unnecessarily radical and gave way to the following procedures:

(b) Thyroidectomy of one lobe. This usually preceded subsequent operations. It was found that here also the operation was not the one of "choice" because recurrences were too frequent, so that

(c) Thyroidectomy of both lobes came into vogue. Following this procedure, many things happened, among which were accidental removal of the parathyroids with fatal tetany, a temporary hypothyroidism followed some time later by a regeneration of lost thyroid tissue and recurrence of the Basedowian syndrome, and occasionally an acute exacerbation of hyperthyroidism which resulted fatally. Many surgeons considering the above procedures too radical resorted to

(d) Ligation of one carotid artery or

(e) Ligation of both carotid arteries. Ligation has for its purpose the partial interruption of the blood supply to the thyroid in order to diminish its functional activity. The collateral circulation in course of time becomes great enough to restore the former excess of vascularity, and the patient is as badly off as before. An occasional simultaneous ligation of all four thyroid arteries has resulted in death. So that many surgeons resorted to

(f) Ligation, unilateral or bilateral, followed some time later by thyroidectomy. This subjects the patient to a plurality of operations and a high mortality rate, to say nothing of the therapeutic futility. A period occurred during which

(g) Sympathectomy or resection of the sympathetic nerve was considered the means of cure, because it was followed by prompt relief of the exophthalmos. This was known as a Jaboulay or Jonnesco operation, but soon fell into disuse because it failed to relieve the other symptoms of hyperthyroidism. Noting that many cases of exophthalmic goitre presented a large thymus, the operation of

(h) Thymectomy, with or without thyroidectomy became the fad, but because of the high mortality rate, this procedure has not become universally popular. Local interference with the excessive action of the thyroid gland was attempted by milder procedures, most important among which are

(i) The injection of boiling water into the thyroid substance as advocated by Porter, and

(j) The injection of solutions of quinine and urea hydrochloride as advocated by Watson. The writer, though not prepared to accept the methods of Porter and Watson as based upon logical grounds, must say that since they are not fraught with the dangers of the aforementioned surgical procedures, they may, in severe cases of hyperthyroidism, be attempted as a supplementary measure where other therapeutic procedures do not yield results promptly enough.

(k) Resection of the colon in cases of exophthalmic and simple goitre has a firm advocate in Sir Arbuthnot Lane. He reasons rightly when he states that the thyroid enlargement on the one hand and its hyperactivity on the other are merely evidences of an infection elsewhere acting as primary cause, and this infection, according to Lane, occurs in the colon, the removal of which overcomes the cause. He realizes the fallacy of attacking the thyroid itself, and his theory sounds plausible, but clinical evidences of cures are too few to warrant the adoption of this procedure in large measure.

With respect to thyroidectomy, the operation most popular with thyroid surgeons, the following may be said:

A happy medium, i.e., the knowledge of how much or how little gland to leave *in situ* during thyroidectomy, has long been and still is a surgical controversy. For fear that the removal of too much thyroid will result in hypothyroidism and the removal of too little in the need for subsequent removal of thyroid substance, surgeons have begun to employ figures with respect to how much of the gland is to be permitted to remain. Some state that one-sixth of the gland should be left behind, others one-fifth, still others one-third, and occasionally an opinion is advanced stating majestically that "not more than one-eighth of the gland should be left behind lest there be a recurrence." All claim that some of it must be left behind, thus admitting that the thyroid gland is a vital organ, (thanks to the experience of men who formerly removed the entire gland). Do such controversies arise with respect to how much of the tonsils or of the appendix should be left behind?

It is not the purpose of the author unconditionally to condemn thyroid surgery. It is frankly admitted that a simple goitre, one which is not a hyperplastic, toxic thyroid but a nontoxic, innocent enlargement of the thyroid gland marked enough

to be discernible at a distance and one which has resisted local and general non-surgical measures for a reasonable time should be handed over to the surgeon for operation. Marked pressure symptoms where dysphagia and dyspnoea are distressing, are also surgical conditions. In this category is included malignant changes; no matter what type of thyroid enlargement, any suspicion of malignant degeneration of the gland classifies the case as surgical. And here again we must include the secondary or Basedowified goitre, whether causing mechanical symptoms or not, as presenting surgical indications. In this latter type the thyrotoxicosis is secondary to the presence of that goitre, be it colloid, cystic, or otherwise, and as soon as the goitre is removed, the toxic symptoms disappear. These cases present the most gratifying surgical results. These conditions, however, are not the true, clear-cut cases of Graves' disease, a condition in which we unreservedly deny the right of surgery to interfere.

That Graves' disease or exophthalmic goitre is gradually becoming recognized as a disease strictly non-surgical in nature, requiring non-operative remedial measures, is now being conceded everywhere. This condition is no more a subject in the realm of surgery than is pneumonia or typhoid or scarlet fever. In pneumonia the surgeon's services may be required to correct a complicating empyema; in typhoid a peritonitis resulting from intestinal perforation; in scarlet fever a dangerous mastoiditis consequent upon a suppurative otitis media. Exophthalmic goitre, though not an acute infectious disease, is nevertheless one strictly outside the domain of surgery, unless dangerous pressure symptoms arise or malignant changes set in.

In view of the fact that many recurrences are seen in surgical clinics (not to mention the immediate mortality rate which is really higher than commonly stated), and also because of lack of ample proof of permanent cure from surgical procedures, far-sighted surgeons in all parts of the world are now becoming skeptical with regard to their accustomed method of treatment of this disease and are beginning to lag in enthusiasm with respect to surgical interference in exophthalmic goitre. A rapid survey of the following opinions, gleaned from various sources, speaks for itself:

"As a general principle, in exopthalmic goitre surgery it is better to err in favor of conservatism, and when in doubt, it is

by far safer to ligate than to thyroidectomize, and to resort to two ligations instead of three, one instead of two. It is better to have an imperfect result than it is to have death, inasmuch as the first alternative may be remedied by a subsequent operation, whereas the latter is beyond one's reach. . . ."—Crotti.

"The *early mild forms* of hyperthyroidism in young individuals *should be treated medically.* We often see young women in schools and colleges, girls and debutantes react to overwork and undue excitement with a mild form of hyperthyroidism. They complain of nervousness, palpitation, insomnia, loss of appetite, muscular asthenia; the cardiac action runs up to 100 or higher; they have a moderate thyroid hyperplasia. This class of patients should be the triumph of medical treatment. Such patients should be treated with rest in bed for several weeks or months until the condition has subsided. Furthermore, their activities should be stopped and complete relaxation obtained. Here all physical as well as medicinal means which medical treatment possesses can be applied."—Crotti.

"How little is known today of the function of the thyroid even though surgeons have been removing them by the thousand! How many physicians still question the propriety of operating for toxic goitre and assume a skeptical attitude as to the reported results of surgical interference! It is my own belief that the present status of surgical therapy is but a stepping stone to the development of some method of arresting the toxic functional disturbances of the gland and that eventually other measures, perhaps non-operative, will be forthcoming, that will deal with the cause rather than the effect of deranged function and by removing the cause, break the vicious circle. . . . No matter how intelligently the surgical management of the case has been executed, satisfactory end results cannot be obtained without quite as intelligent management of the after-treatment. If the latter is not carefully carried out relapses will be more frequent, and the surgeon is dependent on the co-operation of the family physician. It has been our practice, on the patient's discharge, to send the physician a suggestive outline of after-care. The patients must be protected as far as possible from unnecessary physical or nervous fatigue, and to this Ochsner adds the importance of rather rigid dietary regulation on which he lays great emphasis."—Frazier.

"Reviewing the whole subject of the operative treatment of exophthalmic goitre, it seems to me that it may reasonably be doubted whether surgical treatment is not on the whole worse than useless. . . .

"None of the operations that have hitherto been practiced upon the gland, the thyroid vessels or the sympathetic are free from risk. Actual proof that any of them really cures the disease is at present wanting. The sympathetic operation, although it may, and probably does to a slight extent, diminish the exophthalmos, does not usually cure it completely, and may be followed by serious results, such as inflammation of the eye and even blindness. . . .

"The larger operations upon the gland itself, such as extirpation, are attended with so much danger as to make them undesirable. . . .

"With regard to ligature of the thyroid vessels, it still seems to me doubtful whether this proceeding is followed by cure sufficiently often to justify its performance."—Berry.

According to Porter there are three sources of dissatisfaction following thyroidectomy, viz.: First, failure to get relief from symptoms although there be no recurrence of goitre. Second, the immediate mortality is too high. Third, too many cases are seen which have gone beyond the point where the question of surgical relief can be entertained with reason.

According to McCarrison, hyperthyroidism is instigated by a toxemia due to intestinal stasis. This author suggests that surgical interference with the thyroid gland itself is usually not justifiable, but that the seat of the evil be attacked non-surgically, i.e., by the administration of laxatives and intestinal antiseptics. Sir Arbuthnot Lane has also held this view for a long time in his work on intestinal stasis. The fact that exophthalmic goitre and intestinal stasis are both most frequent among women may or may not be a mere coincidence, but we cannot help admitting the suggestiveness of this combination with regard to etiological relationship.

Even Crile, who is a strong advocate of surgery in exophthalmic goitre, says: "These hypersensitive patients may be killed by fear, even by worry; . . . by slight injury or by surgical anesthesia; hence they require anociated treatment in the broadest sense, and in severe cases the operation itself must

be graded." This statement alone serves as sufficient warning against surgical intervention in these patients. The hypersensitive, explosive nervous system, continually dreading the knife, is made worse by the very prospect of surgery and often killed by the surgical shock and anesthesia. This termination occurs either while on the operating table or shortly afterwards.

"It is . . . impossible at present to give surgical treatment the preference over medical means."—Dieulafoy (quoted by Haeberlin.)

"We are beginning to realize that all the ductless glands are intimately related and that in cases of ductless gland disarrangement we are dealing with a pluriglandular syndrome. We can expect ideal results when we can bring about a readjustment of these glands. At present we are not doing this, as would seem to be indicated by the frequency with which some syndromes persist even after most successful thyroidectomy."—Dean Lewis.

"The opinion of an eminent surgeon that 90 per cent of all goitres can be so improved by medical treatment as to make operation unnecessary was probably based upon observation of the effect of rest, for rest is the common element in all the various forms of treatment that have proved successful. (That opinion, by the way, is Kocher's, endorsed by Chas. H. Mayo.)"—Rice.

Statistics are a great source of error in surgery as elsewhere. The gloating over low mortality figures is a very misleading point to farsighted investigators. We must bear in mind the great truism mentioned by an eminent surgeon of bygone days, who decried the too thorough reliance upon statistics, exclaiming that "a dead patient is 100 per cent dead." Surgical statistics in the treatment of exophthalmic goitre *seem* to present information revealing (a) the operative mortality and (b) the percentage of cases relieved or cured. Regarding the first item, it may be said to the credit of surgery that the mortality, formerly as high as 20 per cent or 30 per cent, has now dwindled down, in the hands of competent surgeons, to as low as 5 per cent or 4 per cent, thanks to the refinements of technique by men devoted to thyroid surgery. Concerning the second factor much may be said. Mere improvement is not sufficient reward to the patient for the risk that she has consented to undergo, nor is it sufficient compensation for the scar which she will present

throughout life. Improvement is usually short-lived in almost every instance, the status merging back to the full-fledged condition with which the patient formerly suffered. Indeed, occasionally the symptoms will return with greater vehemence than the occurrence of the original attack.

The word "recovery" as employed by surgical statisticians, does not mean permanent *cure;* it means *surgical* recovery, i.e., recovery from the effects of surgical shock and traumatism, or it means a degree of temporary relief from the Basedowian syndrome, or both. The surgical statistics do not go beyond the first few months or a year and are incapable of presenting evidence leading to conclusive proof of *complete surgical cures of exophthalmic goitre.*

"The present low mortality of thyroid surgery in very competent hands has been obtained at the cost of many unfortunate victims as a rule."—Beebe. This author suggests that it is this improvement in mortality rate that makes the mind of the surgeon reason along surgical lines only, and though some of these men endeavor carefully to follow their patients through the course of months or even years after operation, the responses obtained from these patients through the mails and which constitute the basis of statistical figures regarding percentage of cases cured, improved, etc., are not reliable, since the patient himself is incapable of proper clinical judgment. Beebe emphasizes the fact that the degree of severity of hyperthyroidism may seriously impair the efficiency of its victim without his being aware of it; "and while the patient may accurately report the state of his mind with respect to himself, he is not the most suitable person to decide with accuracy the state of his thyroid activity." The same observer has seen no statistics based upon a careful physical examination of the operated patients some months or years after the operation by physicians skilled in the surgery of this disease and is convinced that such an examination would not tally with present statistical figures of surgery. Beebe has never observed a complete operative cure in a case of exophthalmic goitre. This has also been my experience.

In the rare instances in which there is no recurrence of the symptoms within a year or two following thyroidectomy, the patient had obtained either (a) a natural cure, i.e., the patient was one of those rare instances which tended toward spontaneous

recovery, treatment or no treatment; a case of this sort gets well not because of but in spite of surgical treatment; or (b) a non-surgical cure. Careful surgeons will see that their patients be given prolonged non-surgical treatment prior to operation, and many still more carefully outline non-surgical treatment for a long time after operation is performed, as a result of which the asserted therapeutic value of the thyroid operation itself is reduced to a minimum, the credit of the possible relief or cure of necessity reverting to the non-surgical procedures employed before and after the operation. Without the accompanying non-surgical treatment, thyroidectomy is at once a complete failure, not even yielding temporary relief in most instances. In realization of this fact, most careful surgical clinics see to it that a patient discharged after thyroid surgery is given a list of non-surgical directions, without the religious observance of which, it is frankly admitted by the surgeons, the patient has little hope of the relief of symptoms. As an illustration, Crotti states: "When once a patient has been operated on, he becomes again a *medical patient*. He should be followed medically until cure is assured. The same medical principles which apply prior to the operation find their indication and usefulness after the operation: rest, change of environment, automobiling, sojourn in mountainous regions, are the best adjuvants of the surgical treatment." To further exemplify: in Ochsner's clinic, the following list of printed directions is given to each discharged patient:

"1. You should avoid all excitement or irritation like attending receptions, shopping, church work, or politics.

"2. You should get an abundance of rest by going to bed early and taking a nap after luncheon.

"3. You should have an abundance of fresh air at night, consequently you should sleep with wide open windows or on a sleeping-porch.

"4. You should eat and drink nothing that irritates the nervous system like tea, coffee, or alcohol. Of course, you should not use tobacco in any way.

"5. You should eat very little meat. If you are very fond of meat, take a little beef, mutton, or breast of chicken, or fresh fish once or twice a week, or at most three times a week.

"6. You should drink a great deal of milk or eat things that are prepared with milk, such as milk soup, milk toast, etc.; cream and buttermilk are especially good for you.

"7. You should avoid beef soup or beef tea or any kind of meat broths.

"8. You should eat an abundance of cooked fruits and cooked vegetables or very ripe raw fruits, or drink fruit juices prepared out of ripe fruits.

"9. You may eat eggs, bread, butter, toast, rice, cereals.

"10. You should drink an abundance of good drinking water, or if this is not available, you should boil your drinking water for 20 minutes, or drink distilled water."

Ochsner states that with the exception of a very small number of cases in which an insufficient amount of the gland had been previously removed or in which the remnant left at the primary operation had increased in size, in practically all of the cases which had recurred, almost invariably it was found that the patients had disregarded the above directions regarding diet, rest, and hygiene, following their operative treatment, or they had been permitted to return to their homes without definite instructions in this direction. Is this not an outspoken confession of the failure of surgery in exophthalmic goitre? Note that the real basis of relief is frankly stated to be the above mentioned non-surgical procedure without which surgery is admittedly a failure. These rules alone, properly carried out (and this cannot be refuted by thyroid surgeons), are capable of curing all cases of exophthalmic goitre without surgical intervention, all things being equal.

In addition to the futility of surgical interference in exophthalmic goitre, let us enumerate a few of the many other objections which the internist might advance in this regard:

1. The surgical mortality rate is higher than the stated five per cent, while the non-surgical mortality, if treatment be not too greatly postponed, is practically nil.

2. Many patients succumb to immediate, post-operative, acute exacerbations of hyperthyroidism.

3. Recurrences of goitre and symptoms mean multiple operations with the attending dangers.

4. The subject of exophthalmic goitre, hypersensitive to the extreme degree, may die of fear or of worry over the operation, or even by light infection following surgical procedures. Indeed, experienced surgeons, cognizant of these facts, often prefer to do an enucleation or thyroidectomy in several stages.

5. The frequent presence of sugar in the urine is a contra-indication to surgical procedure.

6. A great danger in these cases is death by status lymphaticus.

7. The occasional removal of the parathyroids during a thyroidectomy with resulting tetany, is by no means a rare occurrence.

8. Injury to the recurrent laryngeal nerve directly through the operation, or subsequently by pressure of scar tissue, is not uncommon, leading to paralysis of the vocal cords.

9. The frequently occurring post-operative myxedema as a result of thyroid enucleation is worse than Graves' disease. Kocher states that the average life of a case of myxedema is seven years.

10. In many instances, surgery has so devitalized the patient that the prognosis is rendered doubtful even when under the care of a competent internist. The surgical shock, the postponement of the proper non-surgical measures during all this time, and frequently the mental attitude of the patient who is so thoroughly disgusted with everything and everybody, including the medical profession, that all initiative to get well is lost—all these factors diminish the prospects for complete recovery.

The real difficulty in the treatment of hyperthyroidism has been that both surgeons and internists have looked for immediate results and drawn their deductions and statistics accordingly. The eagerness to generalize hastily instances of apparent relief or apparent failure on the part of the therapeutists—surgical and non-surgical—has been the stumbling block in the way of therapeutic progress in the treatment of this disease. Surgeons have frequently succeeded in giving immediate improvement, but more frequently these patients suffer a relapse which is sometimes of greater intensity than the primary shock of hyperthyroidism. Internists, even when proper measures are instituted, are impatient when results are not immediate, and turn their cases over to the surgeon. So that here, also, we are tending toward a vicious circle in the therapeutics of the disease. The truth of the matter is that the surgeon should show less haste, and the internist more patience, in the treatment of these cases. I base this conclusion upon the lack of statistics proving permanent cures in exophthalmic goitre on the part of surgeons, and

upon the presence of a large number of permanent cures effected by some internists who skillfully and patiently employ the proper non-surgical procedures through the length of time necessary to bring about complete recovery. My object is to suggest to the medical profession to avoid haste in resorting to surgery and to be more patient in the use of non-surgical measures, and when a general practitioner feels that his case has been treated non-surgically for a reasonable length of time without satisfactory improvement, it is further suggested that, instead of turning the patient over to the surgeon for operation, an internist who has had exceptional experience in thyroid therapy be consulted.

Now what has the internist experienced in thyroid therapy to offer in the treatment of Graves' disease? The answer can be summarized by saying that first, his discharged patients present no mutilating scars; second, his cases are free from such complications as myxedema, tetany, and the others mentioned under surgical considerations; third, he has no mortality rate in cases brought to him that are not in the moribund state; and fourth, his patients, treated by an endeavor to overcome the exciting causes, are discharged *permanently* cured, relapses occurring rarely, if ever.

To emphasize, the following additional opinions are offered:

"The surgeon is apt to do too much and the physician too little."—Musser.

"In Volume LXV (1911) of Guy's Hospital Reports, Dr. Hale White records the results of an attempt upon his part to trace the history of patients discharged after medical management during the last twenty years, and he finds that in about 80 per cent the recovery has been permanent. In my own personal and consultation practice I have had the opportunity to observe a number of patients for periods varying from a few months to twenty-five years after apparent recovery under non-surgical treatment. In but one instance has there been relapse, and in no case had death occurred from any condition with which Graves' disorder could be causatively associated."—Solomon Solis-Cohen.

"The treatment resolves itself into removing the cause. In true goitre, where pressure symptoms are present or sclerotic changes prevent reduction of the mass, surgical measures may

become necessary; but where the growth is purely hyperplastic, elimination of the causative toxin, whether this be tonsillar, peridental, intestinal, water borne, etc., with thyroid gland to aid the antitoxic process and relieve the gland of excessive work, excellent results may be obtained. In Graves' disease with the same line of treatment combined with vasoconstrictors and rest, cure may be obtained in all but a very small proportion of cases."—Charles E. deM. Sajous.

"In four out of eleven 'cures' effected by operation at St. Thomas' Hospital, there was no evidence of Graves' disease found on microscopical examination (Mackenzie), so that in 36 per cent of these cases which were classed as 'cures' we must admit either an error in diagnosis or conclude that the thyroid gland does not share the usual evidences of Graves' disease in a very much higher proportion of cases than has hitherto been supposed.

". . . . the practice of operative interference with the thyroid gland in all cases of Graves' disease at sight and without applying all our resources of our art in the detection of its cause, as is now a very common custom, is one which cannot be too strongly deprecated. I am convinced that . . . . the number of cases in which thyroidectomy is performed will become smaller and smaller and its practice, except in cases which have baffled the most painstaking investigation, will ultimately be abandoned."—McCarrison.

It would be superfluous to publish the numerous other opinions of like nature, all of which coupled with the aforementioned statements of surgeons indicating hesitancy, reveal this conclusion: The profession is about ready to change its views with regard to the therapy of exophthalmic goitre, and this change is decidedly in favor of a rejection of surgery.

Careful non-surgical management, then, is capable of completely and permanently curing the great majority of cases of hyperthyroidism. The occasional exception not responding to non-surgical measures is not an instance of genuine Graves' disease, but is one of malignant degeneration of the thyroid gland, a case of toxic symptoms superimposed upon a long-standing non-toxic goitre, or a case brought to the clinician's attention in a moribund condition. The writer, in unison with others interested in thyroid therapy, does not hesitate to conclude that he

has been able to cure every case of primary Graves' disease in which a fair degree of co-operation was obtainable; this was accomplished in from six months to two years, depending upon the exigencies of the case treated. Strict individualization of the case in hand is the dominating principle of treatment. The proper medical attendant, the proper social atmosphere, and the right kind of dietetic, hygienic, medicinal, psycho-therapeutic, electro-therapeutic and other measures properly applied for the required length of time should yield permanent cure.

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HYPOPHYSEAL DIABETES

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When von Mering and Minkowski had described their experiments on dogs, from which the pancreas had been removed, all secrets of diabetes seemed to be solved. Pflüger's "duodenal diabetes" was proved not to exist and the cause of diabetes was for all, and is still for most investigators, situated in the pancreas. Now it is impossible to deny that the pancreas plays a most important role in the etiology of diabetes, but it is uncertain whether it is the only "diabetogenous" organ. The literature on the subject is enormous. A few opinions, only, may be quoted. According to Heiberg (1) every explanation of a case of diabetes, not taking the pancreas as the source of the disease is suspect. Magnus Levy (2) finds it certain that pancreas and brain can cause a primary diabetes; whether adrenals, thyroid or hypophysis may cause diabetes he regards as extremely doubtful. Allen (3) does not believe that other glands play an important part in the pathogenis of diabetes. On the other hand, Biedl (4) believes that most endocrine organs may be involved in the origin of diabetes, though there are always secondary changes in the pancreas. Eppinger, Falta and Rudinger (5) (6) have given their polyglandular theory of diabetes.

These are only a few authors. An exhaustive bibliography on the subject would fill at least ten pages.

It is still an open question whether, in all cases of diabetes, changes of the pancreas are found and if so, whether they are always the primary origin of the disease or whether diseases of another organ may cause diabetes and then perhaps secondary lesions of the pancreas. I am quite sure it is necessary to accept the polyglandular origin of diabetes. Of adrenal diabetes I have no experience; I have seen some cases of diabetes, which perhaps have to be considered as beginning from the thyroid. As I have not yet enough facts to discuss these cases, I intend to discuss only one rather strange form of diabetes, which I believe must be attributed to the hypophysis.

The hypophysis plays perhaps an important part in sugar-metabolism. According to Borchardt (7) injections of whole gland extract cause glycosuria in rabbits. And though Franchini (8) could not confirm this, Cushing reported results similar to those of Borchardt. Removal of the posterior lobe caused a (very often enormous) rise of the tolerance. The anterior lobe has less influence on carbohydrate metabolism.

But not only does the investigation with laboratory methods show us a relation between hypophysis and sugar metabolism; clinical observation demonstrates most clearly the influence of the pituitary on carbohydrate metabolism. The frequent combination of acromegaly and diabetes is too well known to justify here a long and detailed discussion. Sometimes acromegaly begins with an increased tolerance which diminishes during the development of the disease. In other cases glycosuria is the first symptom of a beginning acromegaly. Schlesinger (10) describes a remarkable case of glycosuria which disappeared under treatment. Some years later glycosuria reappeared and this time acromegaly developed. Now there are two important questions to be answered. Is the glycosuria accompanying some 50 per cent of the cases of acromegaly a real diabetes, and is it possible to explain this glycosuria as of pancreatic origin? Neither question can easily be answered. As far as I know, a good definition of diabetes has never yet been given. If we take the definition of Magnus Levy, it is very simple. This writer says that a glycosuria persisting for some time, is diabetes.

But what about the cases of diabetes without glycosuria? And then, in speaking of diabetes, we feel that a relation must exist between the excretion of sugar and the composition of the food. (Of course I exclude here all cases of so-called diabetes innocens and renal diabetes.) On the other hand, there may be, and there often is, a marked tendency of the organism to form acetone bodies. The patient with diabetes, not dying from an intercurrent disease, dies nearly always in coma. Now, if we consider acromegaly and its combination with diabetes, we see a great difference from the ordinary diabetes. First, in many cases the quantity of sugar in urine and blood is independent of the quantity of carbohydrates in the food. At least it is often difficult to find a relation between the com-

position of the ingested food and the excretion of sugar. Von Noorden (11) has pointed this out and all authors agree with him on the point. Another difference between diabetes with and without acromegaly is the comparatively small tendency toward the formation of acetone bodies, and even when these bodies are formed, coma almost never occurs.

In the Dutch literature there is a remarkable case described by Stricker (12). The patient had acromegaly and diabetes. There was an enormous degree of lipemia and a large amount of acetone and diacetic acid in the urine. Coma was certainly expected. The patient, however, died of paralysis of the heart. As far as I know there are about eight cases known in the literature of acromegaly and diabetes dying in coma diabeticum: Bury (13), Stadelmann (14), Strumpell (15), Hinsdale (16), Ravaut (17), Dallemagne (18) and Umber (19).

Generally the diabetes as it is seen in cases of acromegaly, is not absolutely identical with the diabetes we generally see. Léry (20) thinks it better not to speak of diabetes in these cases, but to call it glycosuria. The complications frequently seen in diabetes mellitus, as furunculosis, pseudo-tabes and arthritis occur also in these cases, but not so often.

Now the second question that must be answered is, whether these glycosurias are caused by an abnormal function of the pancreas. We should like to know whether this glycosuria can occur with a perfectly normal pancreas. The relation between hypophysis and pancreas is not so well established as the relation between some other endocrine glands. The literature on the subject is very small. Cushing quotes experiments of Goetsch, who showed that after partial hypophysectomy, changes occur in the islets of Langerhans. The changes are not so constant as the loss of granules in the acini, also observed after similar operations.

In 1910 Cushing (21) believed that the disturbances in carbohydrate metabolism, as they are seen in diseases of the pituitary are due to secondary changes in the Langerhans islets. Now this was not only unproved, but clinical evidence spoke against it. Stadelmann (14) reports some very important cases of acromegaly. One of them never showed a symptom of diabetes. At the post-mortem examination, an enor-

mous sclerosis of the pancreas was found. This case alone does not prove much, but it is important, when considered in connection with another of Stadelmann's cases. The patient with acromegaly died in coma diabeticum. A very exact histological examination of the pancreas was made. There was not the slightest change. Later on Cushing published another paper (22), in which he concluded that hypophyseal diabetes was possible without recognizable change in the pancreas. He has studied the pancreas in eight cases of hypophyseal disease, and found no characteristic changes. Only infiltration with fat was seen.

These investigations show that in diseases of the hypophysis, though diabetes (or glycosuria) exists, the pancreas may be normal and the question arises whether diabetes may be caused by change in the hypophysis without any other disease, such as acromegaly or dystrophia adiposo-genitalis. With absolute certainty this cannot be discussed without post-mortem examinations, but there is reason to believe that a real hypophyseal diabetes without other signs of disease of the hypophysis exists. There are but few articles on this subject. Brugsch (23) describes certain cases of this sort. Cushing also describes in his book a case of syphilis of the pituitary gland, giving a clinically typical diabetes mellitus.

But in these cases no proof has been given during life of the existence of a disease of the pituitary. Now there is a case in the Dutch literature, in which the diagnosis of hypophyseal diabetes has been made with at least a high degree of probability (Steensma 24). Here a young girl with some inclination to adiposity proved to be diabetic. There were no symptoms of disease of the hypophysis; a radiogram of the skull showed an enlarged sella turcica. The carbohydrate tolerance test was negative. Tablets of hypophysis were administered with a splendid result. The author concludes that there are cases of diabetes which can be treated successfully with hypophysis substance.

This is certainly true, as I shall herein show. Whether this effect proves the hypophyseal origin of the disease will not be discussed. At least, however, it proves that the cases have some relation with the hypophysis. I shall try to show that it is possible in some cases to find out whether organotherapy with

hypophysis is indicated. It is important to know this, for although there exists an enormous literature on the treatment of diabetes, with liver, with pancreas, with testicle and "tutti quanti," we may simply say that the results of organotherapeusis in diabetes are still "nihil."

Two cases may now be described:

Case I. A man of 40 years came under treatment with complaints of asthma, thirst and polyuria. The physical examination showed nothing particularly. The patient was not extraordinarily fat; he had not recently increased in weight; libido sexualis was normal. The urine contained no albumen, 5.2% sugar, acetone, but no diacetic acid. Blood pressure was normal. I began to treat the patient in the old-fashioned way as an ordinary diabetic, but upon testing the tolerance for carbohydrates, I found there was no simple relation between the quantity of ingested carbohydrates and the quantity of excreted glucose. On a diet without carbohydrates the patient excreted more or less sugar. On another day 100 grams of bread was taken without the appearance of sugar. Acidosis was very irregular; from time to time acetone and diacetic acid were found in the urine, without apparent cause. Though I did not understand this, the patient was put under Allen treatment.

DIET

Day		Quantity of Sugar in 24 hours
1	Cooked beans 300 gm., butter 20 gm., weak tea 600 cc.	0
2	Cooked beans 400 gm., butter 30 gm., weak tea 600 cc.	0
3	Cabbage 300 gm., asparagus 150 gm., butter 40 gm., 1 egg	0
4	Lettuce 300 gm., asparagus 200 gm., butter 60 gm., bread, tea	0
5	Cooked beans 300 gm., asparagus 200 gm., butter 60 gm., bread 25 gm., 1 egg, tea	trace
6	Cooked cabbage 400 gm., butter 60 gm., bread 25 gm.	0
7	Cooked cabbage 400 gm., butter 60 gm., bread 50 gm.	0
8	Asparagus 300 gm., butter 60 gm., bread 75 gm.	0
9	Asparagus 300 gm., butter 60 gm., bread 75 gm., lean meat 50 gm., tea	38.6 gm.
10	Cooked beans 300 gm., butter 60 gm., bread 75 gm., tea	trace
11	Cooked beans 300 gm., butter 60 gm., bread 75 gm., tea	0
12	Cabbage 400 gm., beans, butter 80 gm., bread 100 gm., tea	0
13	Cabbage 400 gm., butter 80 gm., bread 100 gm., lean meat, 50 gm., tea	69.2 gm.

14 Cabbage 400 gm., butter 80 gm., bread 50 gm., lean meat, 50 gm., tea..... 21.8 gm

15 Lettuce 300 gm., butter 80 gm., bread 100 gm., tea... 8.1 gm.

16 Lettuce 300 gm., butter 80 gm., bread 100 gm., tea.... 0

Here we see a great sensitiveness to proteins. One feels inclined to say that in this patient in protein metabolism a poison is formed, giving rise to an abnormal carbohydrate metabolism. When this low protein tolerance was demonstrated, I thought of the irregular glycosuria seen in acromegaly and of the possible relationship between the hypophysis and diabetes. A radiogram of the skull was made, but without showing any evidence of hypophyseal involvement; the Wassermann reaction was negative. However, I tried the effect of hypophysis tablets. Three times daily a tablet corresponding to 1-10 of the fresh gland of the cow was given. The effect was striking. The third day after the onset of the treatment 200 grams of bread and 50 grams of meat were tolerated without glycosuria. The fourth day 100 gm. meat and 200 gm. bread gave rise to a glycosuria of 16.4 gm. After a fortnight the "protein tolerance" was 200 grams of meat. It has not been possible to increase this, but to do so is not necessary.

Once we tried to stop treatment; this was followed by a relapse. So this patient is going on, taking his hypophysis tablets. Since the beginning of this treatment, acidosis has never been observed.

Case II. A Belgian workman, 36 years of age, was in an extremely bad condition. His doctor had made a diagnosis of diabetes and treated him in the old way. His breath smelled of acetone. The urine contained 4.8% sugar, acetone, diacetic acid and β-oxybutyric acid. After fasting for 5 days, his urine was normal. There was not seen an increase of acidosis during the first days. Here the same sensitiveness to protein was observed and though for special reasons radiograms could not be obtained, hypophysis tablets were given in the same dosage as in foregoing case. After a fortnight 100 gm. meat and 100 gm. bread were easily tolerated. Before the beginning of the treatment he tolerated only 50 gm. of bread and showed glycosuria when 25 gm. of meat without carbohydrates were ingested. After two months of treatment the patient refused to follow his diet; the regular taking of medicine annoyed him. Some months later he died in coma. The family refused post-mortem examination.

From these cases certain conclusions may be drawn.

I am quite aware that proof is lacking that these two cases are hypophyseal diabetes, but it is probable that the hypophysis has played an important part in them. In other cases of diabetes I have seen no results from the administration of similar doses of hypophysis.

Leyton (25) in his excellent little book on the Allen treatment, cites diseases of the hypophysis as contraindication to this treatment. I believe that it may be possible to detect by such treatment these cases of diabetes (most probably they are not frequently seen) that would benefit from treatment with hypophysis. As far as I know, in cases of acromegaly and glycosuria the analysis of the tolerance for protein and carbohydrates has not been made. Perhaps the irregularity of the glycosuria in these cases could be explained in this way. At any rate, it will be of interest to analyze these cases very carefully. It may be not only of theoretical, but also of practical interest.

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SYMPTOMS OF VISCERAL DISEASE, A STUDY OF THE VEGETATIVE NERVOUS SYSTEM IN ITS RELATIONSHIP TO CLINICAL MEDICINE, by Dr. Francis M. Pottenger, Professor of Diseases of the Chest, University of Southern California, Los Angeles. C. V. Mosby Company, Publishers, St. Louis, 1919, pp. 328.

While the book is not addressed primarily to the endocrinologist, it contains much information that is indirectly involved in his problems, and in the chapters devoted to "The endocrine glands" and the biology of the "Vegetative Nervous System" appeals to him directly.

The monograph is arranged in three parts: I. The relationship between the vegetative nervous system and the symptoms of visceral disease; II. Innervation of important viscera, with a clinical study of the more common viscerogenic reflexes; III. The vegetative nervous system. The central theme of the book is an emphasis of the desirability of closer clinical analysis and the focusing of attention upon "the patient who has the disease" rather than the "disease which has the patient." In this effort, a clean cut knowledge of his endocrine and autonomic nervous make-up is of obvious importance.

In the section devoted to the anatomy, physiology, pathology and pharmacology of the vegetative system will be found a very readable and well-illustrated account of our knowledge, brought up to date. Especial attention is paid to the "viscerotrophic reflex," an important topic that has hitherto received little attention. It explains, for instance, the localized muscular atrophies encountered in pulmonary tuberculosis. In the opinion of the reviewer, the adoption of Mackenzie's term, "viscerosensory reflex," is unfortunate, especially since the author does not explain that it is a physiological absurdity introduced merely for its utility in avoiding intricate explanations.

The book as a whole represents a great deal of study of a difficult field of biology and an admirable adaptation of the data to clinical use. In this latter, the extensive bedside experience of the author has been constantly drawn upon. It is to be hoped that the author may be put to the further task of preparing numerous subsequent editions. —R. G. H.

LA EDAD CRÍTICA (CRITICAL AGE), by Dr. G. Marañón, Hospital General, Madrid, 1919, pp. 501. Sociedad Española de Publicaciones Médicas, Madrid.

In this work which is written with an admirable method and a brilliant and captivating style the author essays an endocrine explanation of the menopause. In the extensive clinical part of the volume are recorded in majestic fashion and with much detail all the symptoms of this condition, using the term in its larger sense.

The author believes that the "critical age" involves the endocrine organs in their entirety, the various ones being affected in different degrees and in different combinations in each case. Either hyperfunction, dysfunction or hypofunction may be displayed. To hyperepinephrinism is ascribed the preponderant role in the production of psychic and cardiovascular disorders presented by certain women approaching the menopause. Thyro-ovarian and hypophyseal syndromes are also regarded as important. The importance of the interrelations between emotions and internal secretions is discussed at length. From the point of view adopted, cases can be grouped by types as "suprarenal," "genital," "hypophyseal" or "thyroid."

Therapeutic measures are discussed at length, the hygienic, dietetic, opotherapeutic and psychologic in turn receiving attention.

A bibliography of 314 titles completes the volume.

The physiologic basis accepted by the author and defended by him with a vivacity seductive to the spirit of the reader has not, in the opinion of the reviewer, the solidity it appears to have. Space does not serve to summarize further the subject matter of the work which the reader will find easy, agreeable and instructive to peruse in the original. Whatever may be the ultimate fate of the doctrines put forward, the work represents a laudable effort which should not be ignored by anyone interested in the field of study concerned.

B. A. HOUSSAY.

ABSTRACTS

(ADRENAL) A case of Addison's disease with rare etiology (Ein Fall von Morbus Addisonii mit seltener Aetiologie). Roth (N.), Wiener klin, Wchnschr. (1917), **30**, 372.

After a pneumonia attack a man of 34 years became very weak. The diagnosis, "Abscessus suphrenicus" was made. An exploratory puncture revealed pus. At the same time symptoms of Addison's disease developed (low blood pressure, low content of blood sugar, typical pigmentations, apathy and diarrhoea). An operation was performed to evacuate. Three days later the patient died. Post-mortem examination showed much pus between the liver and diaphragm. There were only small rests of the right adrenal, situated in a mass of yellow pus. In the left adrenal five or six small abscesses were present. From the pus of these pneumococci were cultivated. The author could not find in the literature another case of Addison's disease caused by pneumococci.—J. K.

(ADRENAL) A case of congenital neuroblastoma sympaticum combined with Addison's disease in a child. Hertz (Povl) and Secher (K.), Hospitalstidende (Copenhagen), 1917, **60**, 1093-1106.

A boy, aged 2 months, showed an abdomen enormously dilated, probably caused by a liver tumor, and anemia; after some time pigmentation of the skin and a tumor in the left side of the abdomen appeared and at the same time the liver tumor decreased. Death occurred at the age of 11 months. At autopsy it was found that the tumor at the left was the adrenal gland, which was dilated and destroyed by a neuroblastoma (Wright). The liver tumor was caused by metastases which had early necrotized and caused partial cirrhosis.—K. H. K.

(ADRENAL) Addison's disease. Motzfeldt (K.), Norsk Mag. f. laegevid. (Christiania), 1919, **80**, 371.

The author describes a typical case of Addison's disease which proved fatal in two months; the autopsy revealed tuberculosis of the suprarenals. The carbohydrate tolerance was low, a fact that is in conflict with the generally accepted views.

Some improvement followed injections with adrenalin, while the oral administration was without any effect. The importance of the suprarenal cortex is emphasized.—Author's Abst.

(ADRENAL) Addison's disease of syphilitic origin. Schaffner (P. M.) and Howard (T.), New York M. J. (N. Y.), 1916, **103**, 1026-1027.

A case report. Antisyphilitic treatment and the administration of desiccated suprarenal gland in doses of one to three grains, t.i.d., resulted in marked general improvement and diminution of the bronzing of the skin. The patient demonstrated possible tubercular trouble of the lungs, hence, inasmuch as most Addison cases have a tubercular origin, the diagnosis of syphilis of the adrenals is open to suspicion.

—H. W.

(ADRENAL) A histochemical method for the demonstration of adrenalin granules in the suprarenal glands. Cramer (W.), Proc. Physiol. Soc., J. Physiol. (Lond.), 1918, **52**, viii-x.

As full report is promised later, it will suffice to state that Cramer has devised a method of staining the suprarenals with osmic acid, which demonstrates the state of activity of the gland, the adrenalin appearing as black granules which can be differentiated from the lipoid globules.

By his method the author has obtained "very clear evidence of the passage of adrenalin granules into the blood vessels of the medulla" when the gland has been stimulated to intense activity. The granules disappear if the gland is exhausted. In conditions "demanding increased functional activity of the suprarenals, fine black granules similar to the adrenalin granules of the medulla, appear in the cortex, especially in the layers of cells nearest the medulla" indicating that the cortex participates in the functional activity of the medulla, and that the two parts of the gland are not physiologically independent.—T. C. B.

(ADRENAL) Altitude sickness and hygiene of aviators (Mal des altitudes et hygiene de l' Aviateur). Ferry (G.), Ann. de Med. (Paris), 1919, **6**, 124-137.

The author attributes the prolonged asthenia occasionally accompanying the sequelae of altitude flying to a suprarenal insufficiency.—F. S. H.

(ADRENAL) Bilateral suprarenal hemorrhage. Eadie (J.), Practitioner (Lond.), 1917, **99,** 183-187.

A boy of five years became acutely ill, crying out loudly every ten or fifteen minutes, and vomiting watery, greenish fluid. Nothing was found clinically to account for the symptoms. The pain was referred to the abdomen, but not localized. He was observed three days, then the appendix was removed, but nothing pathological was found in the abdomen. Death occurred thirteen hours after operation. Autopsy showed nothing pathologic but bilateral suprarenal hemorrhage.

—H. L.

(ADRENAL?) Blood cholestrin index; prognostic value in urinary disease (Indice colesterinémico; valor pronóstico en los enfermos urinarios). Surraco (L. A.), Anales de la Fac. de Méd. de Montevideo, 1917, **2,** —. (No. 11).

The author attributes great importance to the cholestrin index, obtaining it by comparison with a graded standard series. A comparison of the cholestrin and blood nitrogen values offers a possibility of interesting conclusions.—H. R.

(ADRENAL) Blood sugar and the treatment of Addison's disease (Blutzucker und Diättherapie bei Morbus Addisonii). Grote (L. R.), Münch. med. Wchnschr., 1916, **63,** 1614-1616.

In Addison's disease blood sugar is usually diminished. The author gave his patient who had a classical case of Addison's disease 100 grams of sugar daily. At the same time he administered extract of adrenals, and, as it is proved that carbonic-acid baths cause hyperglycemia, he also gave these. The patient improved rapidly; he gained in weight; the blood-sugar rose from 0.05 per cent to 0.10 per cent; the pigmentation of the skin (but not of the mucous membranes) disappeared. The author has not seen the patient lately, and does not know the subsequent history.—J. K.

(ADRENAL) Demonstration that the spontaneously liberated epinephrin can exert an action upon the heart. Stewart (G. N.) and Rogoff (J. M.), J. Pharm. & Exp. Therap. (Balt.), 1919, **13,** 397.

As an outcome of their experiments upon the epinephrin output, the Cleveland investigators conclude that the epinephrin passing into the blood stream from the adrenals at the ordinary rate can exert a definite action upon the heart when

it is under the influence of strophanthin. It was proven by artificial administration of epinephrin that the constituent of the adrenal blood responsible for the observed effects was epinephrin.—F. F.

(ADRENAL) Effect of stimulation of sensory nerves upon the rate of liberation of epinephrin from the adrenals. Stewart (G. N.) and Rogoff (J. M.), J. Exp. M., (N. Y.), 1917, **26,** 637.

Experiments were made upon both dogs and cats. Blood was obtained from the adrenals by means of the "cava pocket" method. An attempt was made to determine whether stimulation of afferent nerves (sciatic and brachial) produced a detectable increase in the rate of liberation of epinephrin from the adrenals, as determined by testing adrenal blood on rabbit intestine and uterus segments. The results were negative.
—J. P. S.

(ADRENAL) Experiments with cell cultures (Ensayo sobre cultivos celulares). Pico (O. M.), 1917, Thesis of Buenos Aires, No. 3296.

The author has made cultures of several organs, using the Harrison method. Included in the series was adrenal gland. In none of the adrenal cultures could evidence of adrenin be detected.—G. P. G.

ADRENAL ganglioneuroma (Ganglioneurom der Nebenniere). Jaffé (B. H.), Beitr. z. Pathol. Anat. (Jena), 1919, **65,** 363.

Description of an ordinary case.—J. K.

ADRENAL hemorrhage in infants. Friderichsen (C.), Ugeskrift for Laeger (Copenhagen), 1917, **79,** 1818-1826.

The author describes two cases, a boy aged 6 months and a girl aged 10 months, who showed the following: Sudden onset of the disease with crying, vomiting, diarrhea, alternating cyanosis and paleness, high temperature, weak and irregular pulse and, several hours after the beginning of the disease, multiple hemorrhages in the skin. After that death occurred. The autopsy showed large hematomas in the adrenal glands. The author suggests that the cyanosis and the hemorrhages of the skin are related to the adrenal insufficiency.
—K. H. K.

(ADRENAL) Histochemical observations on the functional activity of the suprarenal medulla in different pathological

conditions. Cramer (W.), Proc. Physiological Soc., J. Physiol. (Lond.), 1918, **52**, xiii-xvi.

When mice are injected with a suitable dose of tetrahydronaphthylamine, and the suprarenals examined by the histochemical method, it is found that there is, during the first hour a massive secretion of adrenalin granules from the medullary cells into the blood vessels; during the second and third hours the cells are almost completely depleted, and during the fourth and fifth hours the cells again become filled with granules of adrenalin. If the animal dies the post-mortem appearances are similar to death from a toxic dose of adrenalin.

Mice differ markedly in their resistance to cold. Under identical conditions some animals remain well, while in others the temperature falls, and, if prolonged, the animal dies. In the animals that remain well the suprarenals are fully charged with adrenalin granules, while in those that die the medulla is depleted of its adrenalin.

Severe uncomplicated hemorrhage causes an active secretion of adrenalin within five minutes, which leads to an extensive depletion of the medullary cells. If the hemorrhage is arrested, the active secretion continues, but there is a new formation of adrenalin, so that the granules begin to accumulate in the medullary cells in about an hour.

The glands of mice that have died from post-operative shock, one-half to two hours after an abdominal operation, present a somewhat different appearance from those after hemorrhage. In shock the medullary cells are vacuolated, but fully charged with adrenalin granules "and a very active secretion of adrenalin into the blood may be proceeding at the moment when the animal dies." The death of the animal is therefore clearly not due to the exhaustion of the gland or to an inadequate secretion of adrenalin.—T. C. B.

(ADRENAL THYROID) Skin diseases caused by abnormal endocrine functions and their organotherapeutic treatment. (Hautzustände endokriner Voraussetzung und ihre organotherapeutische Beeinflussung). Nobl (G.), Wiener klin. Wchnschr., 1919, **69**, 876.

Four cases of scleroderma are described. One patient had a large goitre, one manifested typical Graves' disease, another showed marked hypoplasia of the thyroid and the fourth showed cystic degeneration of the right lobe, together with struma of the left lobe of the thyroid.

The skin in scleroderma microscopically resembles that in the thyroid alone is at fault. In another case of scleroderma, myxedema. This, however, does not justify a conclusion that

described by Rasch, the only endocrine defect detected at autopsy was total atrophy of one adrenal. Although, as some authors believe, tuberculosis is an important etiologic factor in scleroderma, it also may affect the thyroid and thus cause the scleroderma. It is only in cases in which the sclerodermic manifestations are accompanied by diminished functions of the thyroid that administration of thyroid preparations can be expected to give good results. In the cases described by Nobl neither the dose, the preparation used nor the effect is stated.

Four cases of alopecia are also described. The author believes that they are of endocrine origin, but gives no specific evidence as to the etiology or the results of organotherapy.

—J. K.

(ADRENAL) Studies on the nervous control of the kidney in relation to diuresis and urinary secretion. I. The effect of unilateral excision of the adrenal, section of the splanchnic nerve and section of the renal nerves on the secretion of the kidney. Marshall (E. K.) and Kolls (A. C.), Am. J. Physiol. (Balt.), 1919, **49**, 302-316.

The authors are of the opinion that the changes produced in the secretion of one kidney by unilateral excision of the adrenal are due merely to the damage to the splanchnic nerves caused by the operation, since unilateral section of the splanchnics or the nerves on the renal artery and vein (leaving the adrenal nerve supply intact) produce identical results. Further they contend that the direct vascular connection between the adrenals and the kidney which was demonstrated by Cow in the cat does not function in the dog. This view is supported by the observation that ligation of the lumbar vein of one adrenal causes no change in the urine of the corresponding kidney. This work, however, does not invalidate the conclusion that complete removal of the adrenals depresses the function of the kidneys. (See Endocr., 1917, **1**, 59-60.)

It was also observed that following unilateral excision of the adrenal or section of the splanchnic or renal nerves the kidney on the operated side secretes in general a more dilute urine containing a greater percentage of chlorides, but a smaller percentage of urea, creatinine, lactose and phenolsulphonephthalein. This is always the feature during diuresis produced by sodium chloride, but during a normal flow the urea percentage may be higher on the side with the greater amount of urine. The total amount of water, chlorides and urea is greater on the operated side, while but little or no change is noticed in the total amount of creatinine and phthalein eliminated on the two sides. The similarity of these changes to those occur-

ring during diuresis and in the lessened flow of urine produced by partial obstruction of the ureter is discussed.—L. G. K.

(ADRENAL) Subacute insufficiency of the adrenals in amyloidosis, and some remarks on Addison's disease (Subakute Insuffizienz der Nebennieren bei Amyloidose, nebst Bemerkungen über der Morbus Addisonii). Schlesinger (H.), Wiener klin Wchnschr., 1917, **30**, 99-101.

Description of a patient of 47 years with cachexia, bronchitis and chronic nephritis. There were found marked pigmentation of the skin, no pigmentation of the mucous membranes, low blood pressure and apathy. Injection of tuberculin gave no reaction; injections of adrenalin did not produce glycosuria and had no influence on the blood pressure. The diagnosis was: Non-tuberculous degeneration of the adrenal; chronic nephritis.

Autopsy showed chronic nephritis. Both adrenals showed amyloid degeneration. The author discusses the diagnosis of this case. Though it was a classical example of Addison's disease, it was possible to make the diagnosis of amyloidosis, because the injection of tuberculin did not produce a reaction. It is possible to draw a conclusion from the effect of the injections of adrenalin. If such an injection has no influence on the blood pressure, death may be very soon expected.—J. K.

(ADRENAL) The action of drugs on the output of epinephrin from the adrenals. Stewart (G. N.) and Rogoff (J. M.). J. Pharm. & Exp. Therap. (Balt.), 1919, **13**, 95, 167-182, 183-242, 361.

1. STRYCHNINE

It has been the authors' experience that spontaneous liberation of epinephrin is not easily influenced by experimental conditions. The technique of measuring the epinephrin output is carefully worked out and discussed in detail. The conclusions are based primarily on assays of adrenal blood (from dogs and cats) with rabbit intestine and uterine segments. Additional evidence, however, was obtained by studying the effects produced on the blood pressure by adrenal blood, collected in cava pockets for a given time, before and after administration of strychnine.

Stewart and Rogoff find that the administration of strychnine in therapeutic doses causes a marked and lasting increase (1 to 1½ hours or even longer) in the production and output of epinephrin from the adrenals. The epinephrin content of the glands is not materially diminished even after prolonged action of larger and repeated doses of strychnine. The adren-

als evidently are able to maintain their epinephrin equilibrium in spite of the greatly increased output. There is no direct action on the gland, the strychnine effect being produced by intensification of the normal secretory process through the nervous mechanism.

2. CONCENTRATED SALT SOLUTIONS (SODIUM CARBONATE) INJECTED INTO THE CIRCULATION

Intravascular injection of small volumes of concentrated salt solutions (sodium carbonate) causes a temporary increase in the rate of liberation of epinephrin from the adrenals. It is concluded that the increase is due to stimulation of the nervous mechanism which governs the epinephrin output. The authors caution against the use of concentrated solutions of salts in tubes connecting an artery with a mercurial manometer.

3. NICOTINE

According to Stewart and Rogoff, nicotine, when administered intravenously or hypodermically, produces first a stage of excitation of the adrenals lasting from a few seconds to not over one minute, during which time the epinephrin output is increased to from two to fifteen times the normal. This transient stage is followed promptly by a prolonged period of depression which seems to be the predominating action of the alkaloid upon the suprarenals. The functional paralysis of the glands is so severe that no epinephrin may be detected in the suprarenal vein blood at the time of maximum depression, which is reached shortly after the brief period of increased activity is passed. Normal functioning of the glands is restored gradually.

4. STROPHANTHIN

No decided and constant effect of strophanthin upon the epinephrin output of the adrenals could be demonstrated. This leads the authors to believe that statements in the literature to the effect that the drug causes a marked augmentation of the output are based upon the use of inadequate methods.

—F. F.

(ADRENAL) The chrome reaction of the chromaffin tissue as an indicator of adrenin. (Die Chromreaktion des chromaffinen Gewebes als Adrenalinreaktion). Stoeltzner, Münch. med. Wchnschr., 1919, **66**, 584.

The chromaffin tissue derives its name from its property of giving a brown color with salts of chromic acid. But with silver salts it takes a black color, and with gold salts a purple one. A solution of adrenaline gives the same reaction with chromium, silver or gold compounds. Probably these reactions

of the chromaffine tissue, therefore, are caused by its content of adrenaline.—J. K.

(ADRENAL) Traumatic Addison's disease (Über traumatisch-entstandene Addisonsche Krankheit). Drück (A.), Aerztliche Sachverständigen-Zeitung (Berlin), 1919, **25,** 73.

A man was pressed between two railway carriages, sustaining fractures of several ribs and shock. Three and a half months later the first symptoms of bronzed skin were observed. The patient complained of pains in arms and legs; his muscles became powerless. Gradually he became weaker. He died eight years after the railway accident. At the post-mortem examination no abnormalities were found except that in the place of the adrenals two masses of fat were seen with no trace of adrenal tissue.—J. K.

(ADRENAL) Treatment of inflammations of the organs of respiration with extract of adrenals (Behandlung der Katarrhe der Atmungsorgane mit Nebennierenextract). Diesing. Deutsche med. Wchnschr. (Berlin), 1919, **45,** 602.

The author recommends the use of adrenochrom, made from adrenals of calves, sheep or pigs, by extraction with ether, alcohol and benzine, dissolved in a weak neutral soap solution. This extract is very rich in sulphur. When adrenochrom is used locally on the mucous membrane of the respiratory tract it proves to be a good expectorant, good results being seen especially in pulmonary tuberculosis.—J. K.

(ADRENAL) Treatment of influenza with adrenin (Tratamiento de la grippe por la adrenalina). Ricaldoni (A.), Anales Fac. Med., Montevideo, 1918, **3,** 867.

The author believes that in "exotic grippe" as observed during the epidemic of 1918, the infection gave rise to a condition of partial adrenal insufficiency. The most prominent clinical manifestations of the condition were physical and psychic asthenia, vagotonic pulse which was slow in spite of the fever, and vascular hypotension. The treatment recommended is adrenaline 30-40 drops a day, given, if necessary, hypodermatically.—H. R.

ADRENAL typhoid syndrome (Syndrome surréno-typhique). Escudor Nuñez (P.), Anales Fac. Med., Montevideo, 1918, **3,** —, (No. 8).

The author observed in typhoid the following syndrome: Hyposthenia, hypotension, hypocholestrinemia, dicrotic pulse, and sphygmothermic dissociation. This he attributes to adrenal insufficiency. He advises the administration of adrenin.
—H. R.

(ADRENAL). Treatment of the major syndromes in paludism. (Traitement des grands syndromes du paludism). Benhamou, Bull. gen. de therap. (Paris), 1919, **12**, 536-559.

Since paludism is frequently accompanied by a syndrome resembling that observed in suprarenal insufficiency, the author is of the opinion that in this disease there may occur a lesion of the adrenal bodies.—F. S. H.

(ADRENAL THYROID) Hemadenology: a new specialty. Sajous (C. E. de M.), N. Y. Med. J. (N. Y.), 1916, **103**, 274-5.

The psychoses associated with thyroid disturbances are considered by the author to result because of impairment of the antitoxic function of the thyroid. Normal thyroid secretion is necessary to sensitize the cellular phosphorus to the action of oxygen, hence a deficiency of this secretion results in deficient oxidation in the cerebral cells. Adrenal psychoses also are considered the result of deficient oxidation of cortical neurones, a condition made possible because of a diminished supply of adrenoxidase.—H. W.

(ADRENAL THYROID PANCREAS THYMUS) The distribution in the body of spirochaeta icterohaemorrhagiae. Kaneko (R.) and Okuda (K.), J. Exp. M. (N. Y.), 1917, **26**, 325.

The material which forms the basis of this paper came from forty-three autopsies on the bodies of persons who died at various stages of illness with Weil's disease or acute febrile jaundice. The spirochetes which are now believed to be the causative agent, were found in the glands of internal secretion as follows: In the suprarenals, in ten out of twenty-four cases examined, but in only one case were they at all numerous; in the pancreas, in eleven out of thirty-three cases examined; in the thyroid, in eleven out of seventeen cases examined; in the thymus in both of the two cases examined.—J. P. S.

(ADRENIN) Experimental studies of the ureter. Satani (Y.), Am. J. Physiol. (Balt.), 1919, **49**, 474-495.

Adrenalin and physostigmin stimulate the movements of the excised ureter in Locke's solution. Adrenalin affects the

upper portion of the ureter more strongly while physostigmin gives a more distinct reaction on the lower portion. Ergotoxin in large doses antagonizes the action of adrenalin, but has no influence upon the action of physostigmin. Large doses of atropin antagonize the action of physostigmin, but not that of adrenalin. It is therefore concluded that the ureter is innervated by both sympathetic and parasympathetic fibres. Considerable other information of pharmacological but not of endocrine interest is included in the paper.—L. G. K.

(ADRENIN) Experiments on the causation and amelioration of adrenalin pulmonary edema. Auer (J.) and Gates (F. L.), J. Exp. M. (N. Y.), 1917, **26**, 201.

Intratracheal injection of a single moderate dose of adrenin in vagotomized rabbits usually produces a marked edema of the lungs, which may be greatly reduced by the employment of artificial respiration. As adrenin can exert a broncho-constrictor effect, the authors believe that the aspirating action of the lung alveoli under this condition plays an important part in the production of adrenalin pulmonary edema. This hypothesis is supported by the effect of artificial respiration (with a bellows). The intratracheal injection of adrenalin was also found to produce temporary incoordination between the heart ventricles, visible on inspection, so that the left ventricle beat apparently half as fast as the right, causing hyperemia of the lungs and hemorrhages. Atropine injected intratracheally in vagotomized rabbits exerts a protective action against adrenin pulmonary edema.—J. P. S.

(ADRENIN) Further observations showing that epinephrin from the adrenals is not indispensable. Stewart (G. N.) and Rogoff (J. M.), Am. J. Physiol. (Balt.), 1919, **48**, 397-410.

The authors continue the work previously done on cats and rabbits by showing that in dogs and monkeys, also, the liberation of epinephrin from the adrenals is not indispensable for life and health. As in their former experiments they removed one adrenal and severed the nerves to the other, and after varying intervals assayed on rabbit intestine (and uterus) segments the adrenin content of the adrenal vein blood. As before, the adrenin output was found to have been very greatly reduced, in some cases to an undetectable quantity, without having affected the health of the animals. Tables of additional results from experiments on cats are also included. (See Endocrin., 1917, **1**, 341-2.)—L. G. K.

ADRENIN in auriculo-ventricular dissociation (Adrenalina en la disociación auriculo-ventricular). Arrillaga (F. C.), Rev. Assoc. Méd. Argentina (Bs. Aires), 1919, **30,** 171-172, 193.

Six cases of this disorder were studied with the electrocardiograph. The injection of adrenin produced an acceleration of the beats manifested independently in the auricles and ventricles. Recomposition of the normal rhythm was not seen. In one case there was tachycardia of 140 beats. Ordinarily the reaction of the auricles and ventricles occurred simultaneously, but that of the ventricle occasionally appeared first.—B. A. H.

(ADRENIN) L'hyperglycémie adrenalinique. Phocas (A.), C. R. Soc. Biol. (Paris), 1919, **82,** 485-486.

Following an injection of adrenalin the amount of combined ("virtual") sugar in the blood of well nourished rabbits is not altered, but is diminished in the blood of starving rabbits.—L. G. K.

(ADRENIN) Novocaine-adrenaline stock solution. Elphinstone (J. H.), Dental Cosmos, 1919, **61,** 675.

This solution may be preserved by means of $CHCl_3$ containing a trace of HCl. The solution is contained in a test tube, which is kept in a glass cylinder with a glass cover; the cover is made tight with vaseline; and the $CHCl_3$ is placed on the bottom of the cylinder. Chem. Abst., **13,** 1742.

(ADRENIN) The influence of subcutaneous adrenalin injection on the blood of healthy and sick children (Der Einfluss subcutaner Adrenalin-injektionen auf das Blutbild gesunder und kranker Kinder). Grimm (G.), Jahrbuch f. Kinderheilk (Berlin), 1919, **89,** 442.

In infants the injection of adrenaline produces the same changes in the blood as in adults (the first half hour lymphocytosis followed by a leucocytosis).

In diseases of the lymph gland this reaction is not observed. Also in children with lymphatic constitution extirpation of the spleen has no influence on the reaction.—J. K.

(ADRENIN) Treatment of serious lung diseases in infants with adrenin (Adrenalinbehandlung schwerer Lungenerkrankungen bei Säuglingen). Vogel, Deutsche med. Wchnschr. (Berlin); 1919, **45,** 648.

Good results were reported from the treatment of serious capillary bronchitis with injections of 0.2-0.5cc. of a 1:1000

solution of adrenalin. They must be repeated two to eight times daily.—J. K.

(ADRENIN and PITUITRIN). A study in interaction and interrelation. Cow (D.), J. Physiol. (Lond.), 1919, **52**, 301.

In the rabbit the uterus always responds to adrenalin by contraction; in the rat and guinea pig by inhibition; in the virgin cat by inhibition; in the pregnant cat by contraction. The explanation usually given is the preponderance of motor over inhibitor nerves or vice versa. The occasional "abnormal response" of the guinea pig's uterus and the difficulty of postulating the preponderance of one kind of nerve ending over another as the sole determining cause of the kind of reaction of the uterus to adrenalin, led the author to investigate the subject with the idea of showing whether other factors were involved.

In the guinea pig's uterus the effects of adrenalin and pituitrin are diametrically opposed to one another, adrenalin inhibiting and pituitrin causing increased tonus and contractions. If the two drugs are applied together in proper proportions, the effect is a combination of the two; the uterus shows large contractions and relaxations which in amplitude approach extreme relaxation and extreme contraction. If the pituitrin is in excess the response is more like that of the pure pituitrin movements in a high state of tonus, but with the relaxations more distinct. If the uterus is first treated with pituitrin and, after suspension, adrenalin is applied, the effect is comparable to that of pituitrin alone, not a mixture of the two; in other words the adrenalin effect is reversed by this "sensitizing" with pituitrin. The same is not true if the uterus is treated first with adrenalin and then pituitrin applied. In this case there is either the pure pituitrin effect, or the effect of a mixture. The pregnant uterus gives the "reversed response" to adrenalin more readily than the non-pregnant. The non-pregnant uterus of the cat also gives the "reversed response" to adrenalin. In the rat it is much more difficult to "sensitize" the uterus with pituitrin.

Experiments on the uterus in situ gave similar results. "Some of the animals which had received preliminary treatment with pituitary preparations gave the reversed uterine response to hypogastric nerve stimulation or to injection of adrenalin without any further injection of pituitrin.

Feeding posterior lobe, together with injections of pituitrin is sufficient to sensitize the uterus and cause the "reversed response." It would appear that "an unwontedly generous supply to the uterus of the active principle of the posterior

lobe of the pituitary body is sufficient stimulus to change in some way the reaction to adrenalin of the uterus of such species of animals as normally react to adrenalin (or to hypogastric nerve stimulation) by relaxation." This change seems to take place normally in the cat, during pregnancy. The "sensitizing" action of pituitrin appears to be in the peripheral sympathetic mechanism.—T. C. B.

(ADRENIN, SHOCK) Studies in secondary traumatic shock. III. Circulatory failure due to adrenalin. Erlanger (J.) and Gasser (H. S.), Am. J. Physiol. (Balt.), 1919, **49**, 345-376.

Continuous injections of large doses of adrenalin (6 to 11 cc. of the 1:1000 solution) were made into the femoral veins of dogs, in the course of 21 to 29 minutes. The carotid pressure was recorded and the peripheral resistance measured by the inflow method.

It was found that after sufficiently large doses the arterial pressure usually falls steadily until the animal dies, unless, as occasionally happens, life is cut short by sudden stoppage of the heart or failure of the respiration. Large doses therefore, as judged by the arterial pressure, do long-lasting damage to the circulation if they do not actually carry the pressure down to a fatally low level. During the injection a constriction of both the somatic and splanchnic arteries develops. With large doses this constriction may be maximal and may outlast the injection period for as long as two hours. Part of this long-lasting constriction is central in origin as evidenced by the immediate acceleration of relaxation at death. In one experiment only did dilation follow the constriction at the close of an injection period.

The jugular pressure shows no constant variations of any significance. The portal pressure, however, is increased, often markedly, during the injection and may remain high subsequently, but often it soon returns to the normal level. The rise in portal pressure is ascribed to an extreme obstruction in the liver.

The circulation may fail suddenly through stoppage of the heart due to direct action of adrenalin, or the indirect action of respiratory failure. But more often death occurs after a gradual, steady decline in pressure, the arterial constriction induced by the adrenalin lasting to the end. A reduced blood volume, either real or effective, is believed to be the main factor at fault. Apathy, as well as other signs of shock, are present.

Evidence is presented indicating that the accumulation of blood in the portal area as a result of the increased portal-

hepatic resistance is not in itself the cause of the failure of the circulation, since obstruction of the hepatic radicles in the liver by the injection of lycopodium spores does not lead to the shock-like failure seen after adrenalin. The failure of the circulation is attributed rather to the extreme slowing of the blood flow throughout the body caused by the constricting action of the adrenalin on the arteries. It is concluded that the cause of the failure is the same as is operative after temporary partial obstruction of the vena cava or of the aorta, especially as the most striking lesion found in animals dying as a result of any of these three procedures is the same, namely, a tremendous engorgement of the capillaries and venules of the villi of the intestines.—L. G. K.

(CAROTID BODY) A case of bilateral tumor of the carotid body. Lund (F. B.), Boston M. & S. J., 1917, **176**, 621-623.

Report of a case successfully operated upon. Eighty per cent of carotid tumors are benign for many years, and may often be removed during the early stage without tying the carotid artery.—H. W.

(CORPUS LUTEUM) Action of corpus luteum extracts on the movements of isolated genito-urinary organs. Macht (D. I.) and Matsumoto (S.), Am. J. Physiol. (Balt.), 1919, **49**, 149.

The freshly excised vas deferens of the rat in Tyrode's solution was found to be the most sensitive and the most suitable preparation for testing corpus luteum extracts. Such preparations, when treated with corpus luteum extracts, may react by contractions in solutions corresponding to 1:2500 of the fresh gland and almost always to concentrations of 1:1000 of the fresh gland. Vas deferens does not react to extracts of the ovarian substance, proper.—L. G. K.

(CORPUS LUTEUM) Ovarian organotherapy in depressed lactation (La opoterapia ovárica en la hipogalaxia). Romero (O.), 1918, Thesis of Buenos Aires, No. 3397.

Romero presents further studies on the therapeutic effects reported by Goñalons (Endocrin., 1917, **1**, 390) from organotherapy with the corpus luteum of pregnant young cows in nursing women with little milk. He administered powdered ovary and corpus luteum powder with success. Eight observations were made.—G. P. G.

DIABETES following head injury. (Diabetes nach Kopftrauma). Kaess. Med. Klin. (Berlin), 1917, **13**, 661-663.

Description of the case of a workman who, after a blow on the head developed diabetes. The author, as expert in the lawsuit for indemnification, tells in this article why he believed the diabetes to be of traumatic origin. No new data are offered.—J. K.

DIABETES, The fasting treatment of—. Spriggs (E. I.), Brit. M. J. (Lond.), 1916, **i,** 841-845.

The author details the histories of several cases of diabetes treated by Allen's fasting method. He finds that fasting, up to several days, is well borne by most cases of mild and severe diabetes. The urine is easily rendered sugar-free, the blood sugar is reduced and acidosis greatly diminished. All the patients feel better. In most cases the food can be gradually increased without glycosuria until a more liberal diet is being taken than before treatment. However, the opinion is expressed that in some cases as good an effect may be attained, though more slowly, without fasting, with its risk of depression and weakness, provided the patient is willing to keep permanently to the diet found suitable to his case.—L. G. K.

DIABETES mellitus, The treatment of—. Joslin (E. P.), Canad. J. Med. & Surg. (Toronto), 1916, **40,** 89-102; Dominion M. Month. (Toronto), 1916, **46,** 37-49.

An interesting discussion of the fasting treatment of diabetes. The desirability of a preparatory period with a fat-free diet is emphasized. If the urine is not rendered sugar-free by a four-day fast there is a likelihood of some complicating infection. If glycosuria persists after a preliminary four-day fast, alternate feeding and fasting is advocated. It is pointed out that a return of sugar demands fasting for twenty-four hours or until the urine is sugar-free—a rule that must be inflexibly followed, especially with children.

—L. G. K.

DUCTLESS GLANDS, The—and atypical growth. Little (S. W.), New York M. J. (N. Y.), 1916, **103,** 208-213.

The secretions of the ductless glands are known to exert a great influence on cell growth, on inhibition of cell growth, on cell differentiation or inhibition of the same, with consequent marked peculiarities in size, shape, and development of various organs or even of the entire individual. The ductless glands appear after cell differentiation has begun and continue to develop as this becomes more complete, but their secretions do not bring about specialization; they act only to furnish

something essential for the maintenance of specialized cells. Such being true a deficiency of the ductless glands should result in either failure or reduction of cells to a simpler form; the maintenance of specialized function would no longer be possible. If an adult carried embryonic cells and at the same time demonstrated a failing ductless gland essential to maintain properly the highly specialized cells, one could not expect the embryonic cells to develop when the ductless gland essential even to keep intact the developed cell is detriorating. The embryonic cell, lacking the influence of the appropriate ductless gland, simply multiplies without development. Atypical growths, therefore, may be considered the result of uninhibited embryonic cell activity due to ductless gland failure.

If the theory is true then the administration of properly chosen preparations of the ductless glands should be indicated. Such a claim is made by the author.—H. W.

DWARFISM. Ueber evolutive Vegetationsstörungen. Bauer (J.), Wiener klin. Wchnschr., 1917, **32**, 739.

A very good article on the different forms of dwarfism and gigantism. No new data.—J. K.

(ENDOCRINOLOGY) Conceptos generales de Endocrinología. Escuder Nuñez (P.), Anales de la Facultad de Medicina de Montevideo, 1919, **5**, 1.

General review.—H. R.

(ENDOCRINOLOGY) Early therapeutic use of animal extracts. Macpherson (L.), Brit. M. J. (Lond.), 1918, **(i)**, 607-608.

A brief list of some of the earliest works that describe the use of animal extracts.—L. G. K.

(ENDOCRINOLOGY) Gynecologic evolution. Clinical conceptions and their therapeutic usefulness (Evolución de la Ginecologia. Conceptos clinicos y valores terapeuticos actuales). Pandolfo (P.), Thesis of Buenos Aires, No. 3476, 1918.

Pandolfo in the second chapter of his thesis gives an account of the newer points of view of the ovarian hormone functions and the relation of the ovaries to the other ductless glands. No new data are offered.—G. P. G.

(ENDOCRINE ORGANS) A case of myasthenia gravis with post-mortem examination (Über einen Fall von Myasthenia

gravis mit Autopsie). Pulay (E.), Neurol. Centralbl. (Leipzig), 1919, **38,** 263.

The cause of this disease is unknown. Some authors consider the disease as congenital, others think of an abnormal function of the thymus or of the parathyroids. Pulay describes a classical case in a girl of 17 years, beginning with difficulty in speaking and swallowing; then ptosis was seen. She gradually lost her hair. She became very easily fatigued. There was a marked atrophy of the tongue. She died in dyspnea. At the post-mortem examination were found goitre, status thymicus, narrow blood-vessels, hypoplasia of the ovaries, large spleen and enlarged adrenals.—J. K.

(ENDOCRINE ORGANS) Atrophic myotonia and cataract (Myotonische Dystrophie und Cataract). Hauptmann, Klin. Monatsbl. f. Augenheilk. (Stuttgart), 1918, **60,** 576.

A clinical description of this disease. It begins after the age of 20. The chief symptoms are atrophy of muscles, degeneration in brain and spinal cord, atrophy of the gonads, loss of hair, depletion of lime from the bones and cataract of both eyes. Most probably the disease is hereditary and is caused by a congenital degeneration of the central nervous system and the endocrine organs.—J. K.

(ENDOCRINE ORGANS) Bilirubin in the blood and the influence of chemical substances on it (Über das Bilirubin im Blute und seine pharmakologische Beeinflussbarkeit). Bauer (J.) and Spiegel (E.), Deutsch. Archiv. f. klin. Med. (Leipzig), 1919, **129,** 17.

It is now generally accepted that normal blood contains always traces of bilirubin. The quantity is different in different individuals but is constant in the same person. It is possible to diminish the content of bilirubin by administration of adrenalin; extract of testicle and extract of pituitary (especially of the anterior lobe) had the same effect. Extract of thyroid had in one case no effect; in another case the bilirubin was slightly diminished. Injection of thymus extract gave, twice, diminution and, once, increase of the bilirubin. Extract of ovary had no influence.—J. K.

(ENDOCRINE ORGANS) Clinical aspect of the diseases of the ductless glands. Sailer (J.), New York M. J., 1917, **105,** 1121-1125.

Glandular disturbances may be classified as to their etiology as follows: Infectious causes including hereditary infec-

tions; toxemias; disturbances of nutrition; traumatism, including surgery; nervous influences; tumors; hereditary and familial types; marked activity of other glands of internal secretion and atavism. Illustrative cases are considered under each class.—H. W.

(ENDOCRINE ORGANS) Contribution to the caption "Internal secretion" (Beitrag zum Kapitel "Interne Sekretion"). Hoeflmayr, Münch. med. Wchnschr., 1919, **66**, 512.

The author describes four cases of atrophy of the optic nerves. In these cases no cause could be detected but each individual had experienced diminished function of the generative organs. One case was cured by a general treatment (baths, massage, etc.). The other three were cured by treatment with "horminum feminum." The significance of the article is obscure.—J. K.

(ENDOCRINE ORGANS) Fundamental considerations in the treatment of psychoneuroses. Gregg (D.), Boston M. & S. J., 1917, **176**, 57-58.

Psychoneuroses may be defined as functional disturbances having an emotional origin. True psychoneuroses include such conditions as neurasthenia, hysteria and possibly psychasthenia. They do not include true fatigue, exhaustion or organic conditions due to internal glandular disturbances, such as hyperthyroidism and the menopause.—H. W.

(ENDOCRINE ORGANS) Infantilism and disturbances of puberty (Ueber Infantilismus und Störungen der Geschlechtsreifung). Lommel, Med. Klin. (Berlin), 1917, **13**, 618.

Among 600 individuals between 14 and 17 years of age the author observed fifty-five cases of infantilism. They showed infantilism of the generative organs and were smaller than the others. In one young girl a dystrophia sclerodermica (ceasing of the menstruation, leanness, nutritive disturbance of the skin, senile involution of the uterus) was seen.—J. K.

(ENDOCRINE ORGANS) Metabolism in diseases of the ductless glands (Grundumsatz bei Störungen innersekretorischer Organe). Löffler, Ztschr. f. klin. Med. (Berlin), 1919, **87**, 280.

In a case of Addison's disease metabolism was diminished; the quantity of excreted CO_2 and used oxygen was low; the respiratory quotient was low. Administration of 1 cc. of

1:1000 solution of adrenalin raised the quantity of CO_2 and O_2 and raised also the respiratory quotient. This increase lasted for more than two hours. In another case of Addison's disease with symptoms of an increased function of the thyroid, metabolism was normal. It was also normal in a severe case of parathyreoprivic tetany with myasthenia. The quantity of CO_2 and O_2 was slightly diminished in a case of familial obesity.—J. K.

(ENDOCRINE ORGANS) Non-specific effects of organo-therapeusis (Unspezifische Wirkungen in der Organotherapie). Borchardt, Deutsche med. Wchnschr. (Berlin), 1919, **45**, 813.

The author found that the formation of agglutinins after inoculation against typhoid fever was largely increased when adrenaline was injected. This is a non-specific action. It is not impossible that extracts of other endocrine organs act in the same way. Perhaps these organs act through "activation of the protoplasm."—J. K.

(ENDOCRINE ORGANS) Rachitis tarda. Wenckebach (K.), Deutsche med. Wchnschr. (Berlin), 1919, **45**, 784.

A brief note on a case of rickets in a man of 19. These cases (rather frequent in Holland) were extremely rare in Vienna; but since 1918 they are seen frequently. This patient had symptoms of polyglandular insufficiency (pain in the joints, infantilism, tetany and abnormal pigmentation). He was treated with phosphorus and cod-liver oil.—J. K.

(ENDOCRINE ORGANS) Significance of war pathology (Bedeutung und Ergebnisse der Kriegs-pathologie). Röszle (R.), Jahreskurse f. ärztliche Fortbildung (Munich), 1919, **10**, 23.

In this article (although not primarily on an endocrine topic) there are some notes on the endocrine organs. The author gives the results of his post-mortem examinations of German soldiers killed in the war. The average weight of the thyroid is 34 grams; soldiers born in mountainous districts have larger thyroids than those born in the level country. The average weight of the adrenals is 14.1 grams. Many authors have reported atrophy of the adrenals in all cases of status thymo-lymphaticus; according to Röszle, however, this association is very rare. The average weight of the hypophysis is 627 milligrams, and that of the testicle 34 grams. This last weight is usually reached at the age of 19-20, after which there is generally no more increase in weight. Some German authors have written that many young soldiers had sexual infantilism.

The author rarely observed this; in most of these cases there was at the same time a tuberculous infection.—J. K.

(ENDOCRINE ORGANS) The absence of fat-soluble A vitamine in certain ductless glands. Emmet (A. D.) and Luros (G.), J. Biol. Chem. (N. Y.), 1919, **38**, 441-449.

The ether extract of the pancreas, thymus and adrenal does not contain "fat-soluble A." One of the ductless glands, however, cod's testicles, does contain this dietary factor.
—V. K. L.

(ENDOCRINE ORGANS) The coagulation of the blood (Beitrag zur Lehre von der Blutgerinnung). Schilling (K.), Biochem. Ztschr. (Berlin), 1919, **95**, 220.

The author examined the influence of extracts of liver, lung, heart, kidney, adrenal, thymus, testicle, spleen, pituitary, thyroid and pancreas on the time in which the blood coagulates. All these extracts quicken the coagulation of the blood to which they are added. The action is due to the quantity of fat of the extract. If first all fats are removed and the extract, free from fats, is added to the blood, it has no influence on the coagulation time.—J. K.

(ENDOCRINE ORGANS) The frequency and significance of dysfunction of the internal secretory system in the feebleminded. McCord (C. P.) and Haynes (H. A.), New York M. J., 1917, **105**, 583-588.

Of 1134 feebleminded inmates in the Michigan Home and Training School, 240, or 21.16 per cent., showed characteristics of various glandular syndromes. Heredity stands out as the prominent factor in the etiology of these cases. The demonstration of glandular syndromes in the feebleminded does not in itself allow any inference that the condition can be attributed to the glandular dysfunction. The glandular defect may determine the increasing defect; but more often the co-existing feeblemindedness and glandular defect are both the outcome of a common cause. Promiscuous treatment of the feebleminded with glandular derivatives is unprofitable and unwarranted. In borderline cases of glandular disease with trivial mental inadequacy, glandular therapy may prove of especial value. Often in these cases no true mental deficiency exists, and all manifestations of mental inadequacy are referable to the glandular malfunction. In such cases glandular treatment persistently carried out may be the factor deciding between normality and increasing defects.—H. W.

(ENDOCRINE ORGANS) The osteomalacia-like diseases in Vienna (Zur Kenntnis der gehäuften osteomalazieähnlichen Zustände in Wien). Schlesinger (H.), Wiener klin. Wchnschr., 1919, **32**, 245.

In Vienna an endemic disease of the bones is observed. Most probably this is due to lime and phosphorus starvation. The activity of the endocrine organs has been diminished by the insufficient feeding. Old women, especially, suffer from it, but the disease is also observed in men. The pelvis is generally normal; the ribs and the sternum are most affected. The condition is very painful. Treatment with lime, phosphorus and adrenalin alleviates the pain, but has no effect whatever on the defects of the bones.—J. K.

EUNUCHOIDISM. Climenko (H.) and Strauss (I.), Arch. Neurol. and Psych. (Chgo.), 1919, **1**, 726-748.

The authors believe that in the eunuchoid lies the key to a solution of some of the vital questions in endocrinology, and on the fact that the pathology of congenital eunuchoidism has been shown to be due to a disturbed pluriglandular condition he bases the present study. The literature is reviewed at length. In general the division of eunuchoids into two groups by Tandler and Grosz is accepted: (1) tall, slender individuals with abnormally large extremities, and (2) stout, bloated people with accumulations of fat at various points. The author has observed, however, intervening types.

Six cases are described in detail with photographs and roentgenograms of the sella turcica. Five of the cases were men. The one woman had strongly marked acromegalic features. There was clinical and laboratory evidence of pluriglandular disturbance in all the cases, the adrenals seemingly being most greatly at fault. In the first four cases, all congenital eunuchoids, three showed status lymphaticus. One gave clinical symptoms of apoplexy into the cord, a condition hitherto unreported. The third and fourth cases each had a very small sella turcica, which is very rare in eunuchoids and contrary to the accepted opinion that the sella is always enlarged. The author believes this illustrative of the fact that judgment of the function of the pituitary should not be based on the size of its bony envelope. In all the five male cases there was a conspicuous lack of masculine traits and all had high-pitched voices. In the one female case, diagnosed as tumor of the hypophysis, there was a pronounced inversion of secondary sexual characteristics; here nature had created an acquired eunuchoidism for through interference with the pituitary function the sex glands had ceased to act. The sec-

ond case, that of giantism, was an imbecile, but the mental status of all the other cases was normal. The sixth case had complete absence of external secretion of the testicles, yet he retained the secondary sexual characteristics and was able to indulge freely in coitus. All except the imbecile stated that they had a desire for the opposite sex. The author, however, believes that these people are without a real libido, and interprets their desire as a wish to be like other people.

No form of therapy is of any avail since these cases are finished products.—Authors' abstract (abbreviated).

(GENERAL) Concerning the dysfunctioning of some endocrine glands during pregnancy (Ueber die Dysfunction einigen endokrinen Drüsen in der Schwangerschaft). Mahnert (A.), Arch. f. Gynäk. (Berlin), 1919, **110**, 743-765.

Mahnert in using the method devised by Abderhalden for the detection of specific proteolytic enzymes, found that the serum of pregnant individuals was different from that of non-pregnant persons in that the majority of cases showed the presence of enzymes specific for ovarian, thyroid, and suprarenal proteins. From this he concludes that during pregnancy there occurs a dysfunctioning of these glands.—F. S. H.

(GONADS) A case of eunuchoidism (Vorstellung eines Falles von Eunuchoidismus). Tachau, Münch. med. Wchnschr, 1917, **64**, 19.

Description of a German sergeant of 22 years with atrophic gonads, a high voice, no beard and no hair over the body except pubic crines. There was no sexual desire. X-ray examination showed a small heart and normal sella turcica. No alimentary glycosuria was produced by 100 grams of glucose. —J. K.

(GONADS) A case of pseudohermaphroditismus (Ein Fall von—). Schmalfuss, Deutsche med. Wchnschr. (Berlin), 1919, **45**, 592.

Of technical anatomical interest.—J. K.

(GONADS) Experimenteller Hermaphroditismus. Sand (K.), Arch. f. d. ges. Physiol. (Berlin), 1918, **173**, 1.

Data published elsewhere. See Abst. in this number.

(GONADS) Hermaphroditismus femininus externus. Köhler (R.), Wiener klin. Wchnschr., 1917, **30**, 1117.

An individual of 20 years had an operation for peritonitis. During the operation a uterus and one Fallopian tube were discovered. The exterior genitals consisted of a penis instead of clitoris, with labia majora and minora. The vagina was narrow and of a finger length.—J. K.

(GONADS) Libido and hormones (Geslachtelijke potentie en inwendige afscheiding). Posner (C.), Med. Weekblad (Amsterdam), 1916, **23,** 592-596.

Sexual desires are independent of spermatogenesis for they remain when the formation of spermatozoa has been destroyed by X-rays. Organotherapy in sexual impotence has sometimes given good results.—J. K.

(GONADS) Masculine type of pseudo-hermaphroditism (Pseudo hermaphroditism masculin). Girou (T.), Ann. Gyn. et d'Obstet. (Paris.), 1919, **13,** 434-436.

Concise description of surgical findings in a case of pseudohermaphroditism of the masculine type originally diagnosed as inguinal hernia.—F. S. H.

(GONADS) Pseudo-hermaphroditism, externally female, with diffuse papillomatosis in a rudimentary urethra. Verning (P.), Ugeskrift for Laeger (Copenhagen) 1918, **80,** 1701-1708.

The patient, aged 71 years, had when young been a public woman. The Wassermann reaction was positive. Menstruation occurred from the 13th to 52nd years. Flow had now again begun. She was of virile habitus. The clitoris was 6 cm. long; in the glans of the clitoris was a urethra with a normal orifice. At the base of the clitoris a walnut-sized tumor, microscopically, an epitheloid papillomatous structure was found. The uterus was large and the cervix normal.

—K. H. K.

(GONADS) Pseudohermaphroditism. Record of a case of bisexual external organs of generation, psychic hermaphroditism, and gumatous ulceration of the genitals. Gottheil (W. S.) and Goldenthal (C.), New York M. J., 1917, **105,** 933-935; Abst. J. Cutan. Dis. incl. Syph. (Boston), 1917, **35,** 267.

A negress 15 years of age showed a combination of general male type of body, very large penis with spongy and cavernous bodies, distinct psychical inclinations to the female sex, a vagina, cervix and occasional menstruation. No testes were present in the scrotal sacks. Besides the malformation

of the generative organs, the individual showed other stigmata of degeneration.—H. W.

(GONADS) Ueber Hermaphroditismus. Baumgarten (A.), Wiener klin. Wchnschr., 1916, **29**, 1507-1509. Abst. Münch. med. Wchnschr., 1916, **63**, 1804.

In a man of 22 years a little uterus was found at operation, in the inguinal canal. One tube was present, and at the end of it an organ resembling an ovary. Microscopic examination, however, proved it to be a testicle not now forming spermatozoa. The external genital organs were normal, but the external orifice was situated at the junction of scrotum and penis. Epidydimus or vas deferens was not found. In the scrotum was only one testicle and it was very small. The patient had a beard and pubic and axillary hairs. The voice was of the male type; the pelvis was not of the female form. There was no sexual desire.—J. K.

GYNECOMASTIA and mammary hormones (Zur Kenntnis der Gynäkomastie und zur innersekretosischen Theorie der Brustdrüse). Novak (J.), Zentralbl. f. Gynäk (Leipzig), 1919, **43**, 253.

Description of 5 cases.

1. A perfectly normal man of 37. He has a goitre. The right breast is very large, of the female type and contains colostrum. The left breast is normal. The gonads are normal. Libido sexualis is normal.

2. A normal man of 19. He complains only of pain in the left breast. The left breast is large and contains colostrum, the right one nothing particular. The gonads are well developed but there is no libido sexualis.

3. A soldier of 19 has no beard and no hairs in the axilla. Both breasts are large, of female type. They contain colostrum. There is no libido sexualis.

4. In a man of 35 without abnormalities, the right breast is large and painful. The gonads are normal.

5. A man of 20 had female breasts. From time to time they were swollen and painful. Both were removed. Histological examination showed the typical female gland, but without signs of activity (no formation of milk). The gonads were normal.

The testicle has (as we know from the transplantation of Steinach) the power to reduce the development of the mammary gland. Perhaps in these cases the function of the gonad has been diminished (in some of them there was no libido sexualis), but certainly this is not the only cause of gyneco-

mastia. In the first case there was a normal libido and the patient had normal gonads. The author never observed homosexuality in his cases.—J. K.

(THYROID) Graves' disease and increased height in children. Gram (H. C.), Hospitalstidende (Copenhagen), 1918, **61,** 913-930.

As Holmgren has shown, there is in many cases a coincidence of Graves' disease and augmentation of the height. The author describes 3 cases which confirm this opinion. A girl, aged 12¾ years, with goitre, tachycardia and active vasomotor reflexes, was 164 cm. in height. A radiogram of the elbow epiphyses showed ossification corresponding to the age of 17-18 years. Another case, aged 13½ years, with goitre, nervousness and tachycardia showed also a considerable and early ossification. The third patient was 13 years of age, had goitre and tachycardia and was 160.5 cm. in height—K. H. K.

(HYPOPHYSIS) A case of diabetes insipidus treated with pituitrin. Norgaard (A.), Hospitalstidende (Copenhagen), 1917, **60,** 885-902, 909-927.

A patient with typical diabetes insipidus was examined after dosing with chloride of sodium, water, pituitrin, etc. Chloride of sodium augmented the diuresis much; bicarbonate of potassium did not increase it; consequently the chlorid ion was diuretic. Urea did not increase the diuresis; water was very diuretic, protein food somewhat so. Upon injection of pituitrin all the symptoms disappeared. The effect of each injection lasted about 10 hours. The treatment must be dietetic, salt- and protein-poor food, restriction of liquid and further injections of pituitrin 2-3 times a day.—K. H. K.

(HYPOPHYSIS) A case of pituitary tumor. Hansen (P. N.), Ugeskrift for Laeger (Copenhagen), 1917, **70,** 559-570.

A man, aged 48 years, had optic atrophy and bitemporal hemianopsia with enlargement of the sella turcica. There was no acromegaly nor adiposo-genital dystrophy. Operation (through the nose) and extirpation of a sarcomatous tumor was performed. After the operation X-ray treatment was administered. The subjective symptoms and visual field improved, but after the operation a marked polyuria developed. —K. H. K.

(HYPOPHYSIS) Acromegalia. da Cunha Motta (L.), Weiszflog, Publisher, Sao Paulo, Brazil, 1919.

An anatomical study of a fatal case of acromegaly and of a tumor removed surgically from an acromegalic woman. In the first case there was an eosinophile cell adenoma. In the other a chromophobe cell adenoma was found. In the first case examination disclosed a normal pharyngeal hypophysis.

—B. A. H.

(HYPOPHYSIS) A cystic tumor of the hypophysis cerebri, with optic nerve atrophy. Hughes (H. S.), Am. J. Ophth. (St. Louis), **34**, 142.

The writer reports a case of tumor of the pituitary, producing in addition to a bitemporal hemianopsia, symptoms of obesity, polyuria and somnolence. This is a classical case.

—J. H. L.

(HYPOPHYSIS) A new hypophyseal symptom complex (Ein neuer Symptomencomplex der Hypophysis cerebri). Fliess (W.), Med. Klin. (Berlin), 1917, **13**, 966-970.

The author describes a new complex of symptoms; they are nearly always observed in women after pregnancy or in women with diseases (cystoma) of the ovary. The symptoms are: obstinate neuralgias (sciatica, occipital neuralgia), extreme weariness (this weariness is often periodically increased), psychic disturbances (diminished concentration of thoughts), polydipsia, polyuria and enuresis. Treatment with hypophysis preparations is always successful.—J. K.

HYPOPHYSIS as regulator of diuresis and the specific gravity of the urine (Die Hypophyse als Regulator der Diurese und des spezifischen Gewichts des Harnes). Bab (H.), Münch. med. Wchnschr., 1916, **63**, 1685, 1721, 1758.

Urine secretion depends upon the circulation in the kidneys and this circulation is under the control of the endocrine system. Pathological polyuria as it is seen in diabetes insipidus is caused by a diminished secretion of the pars intermedia of the pituitary. Theoretically it is possible that the function of the pars intermedia is normal but that the posterior lobe is not able to assimilate the products of this structure. Subcutaneous injection of an extract of posterior lobe has a good effect in diabetes insipidus. This effect lasts only for a short time. Oral administration has no effect whatever. The best test object for assaying preparations of hypophysis is a patient with diabetes insipidus. The effect of this extract is specific. Other glands have no similar action. In normal individuals an injection of extract of the posterior lobe increases the concentration of the urine.

In diabetes insipidus the kidney is normal. It is often said that the kidney has lost its concentrating power, but according to Bab this is not true, since he observed that when extract of hypophysis was injected the concentration of the urine became normal.

In Addison's disease no symptoms of diabetes insipidus are observed. This is very remarkable for injection of extracts of adrenals causes also an increase of the specific gravity of the urine. Probably the hypophysis in this disease can assume the regulatory functions of the adrenals on the secretion of the kidney. In the diseases of the hypophysis, however, the adrenals cannot replace the hypophysis.—J. K.

(HYPOPHYSIS) Atypical, secondary hypophyseal adiposity with lunacy (Atypische und sekundäre Hypophysenfettsucht mit Geistesstörung). Weygandt, Deutsche med. Wchnschr. (Berlin), 1917, **43**, 350.

Hypophyseal adiposity is often seen in porencephaly and epilepsy. A description of two cases is offered.

1. A patient, age unknown, had epileptic attacks, idiocy, and a weight of 152 kg. At post-mortem examination the weight of the brain was 1055 grams; degeneration of the pars nervosa of the hypophysis, chronic encephalitis, and hypoplastic thyroids were found. The testicles were normal.

2. A girl of 17 had mental deficiency and epilepsy. She was very fat. Autopsy showed hydrocephalus internus, with compression of the brain substance and large sella turcica. Probably the pressure in the skull has had an influence on the hypophysis and in this way caused the adiposity.—J. K.

(HYPOPHYSIS) Case of hyperpituitarism with homonymous hemianopsia (supracellar cyst) completely relieved by glandular therapy. Elsberg (C. A.) and Krug (E. F.), Arch. Ophthal. (N. Y.), 1917, **46**, 97-103.

This case is of marked interest and instructive in view of the failure of a right sub-temporal decompression to improve a failing vision in an adult female showing evidence of hypophyseal pressure. The patient in fact became decidedly worse. She, however, began to improve rapidly under the administration of hypodermic injections of pituitrin. Eight weeks after treatment was begun her cyanosed extremities improved in color, she gained weight and became stronger. Her visual fields gradually enlarged. What is of additional interest, clinically, is that the skiagram showed a small sella and normal clinoid processes.—J. H. L.

HYPOPHYSIS, Contribution to the study of the—(Contribución al estudio da la hipófisis). Silva (A. S.), Thesis, Faculty of Medicine, Santiago de Chile ,1917.

Injections of hypophyseal extracts cause a fall of arterial blood pressure. In Graves' disease they produce a marked retardation of the pulse, transient polyuria and glycosuria, pallor of the skin and contractions of the intestines and uterus.
—B. A. H.

(HYPOPHYSIS) Demonstration of a man of 19 with a slight hypophyseal dystrophy (Demonstration eines 19 jährigen Mannes mit hypophysärer Dystrophie leichten Grades). Oehme, Deutsche med. Wchnschr. (Berlin), 1917, **43**, 701.

The man weighed 57 kg. His height was 175 cm. He had no beard, no pubic crines and no hairs in axilla. The testicles were of normal volume but the pelvis was of female form. The blood picture was that of chlorosis. The hypophysis was enlarged (X-ray photograph). There was a slight degree of bitemporal hemianopsia but no diabetes insipidus. After 200 grams of glucose, no glycosuria resulted. The quantity of excreted endogenous uric acid was 0.295 grams. After the injection of 0.5 cc. pituitrin (Parke Davis) this endogenous excretion increased to 0.63 grams. This reaction seems to be typical for hypophyseal dystrophia; in normal individuals and in a patient with acromegaly it was not seen.—J. K.

(HYPOPHYSIS?) Diabetes insipidus. Nicolyasen (L.), Norsk Mag. f. Laegevid. (Christiania), 1917, **78**, 1184-1209.

Report of two cases, clinically observed only.

Case 1. A woman of 44 had previously been in good health. The symptoms set in gradually after confinement. There were polyuria (3000-4000 cc.) with increased thirst and anidrosis. She gained considerably in weight and developed a state of general weakness. The concentrating ability of the kidneys was relatively good. Injections with pituitrin lowered the output of urine, but only temporarily.

Case 2. A woman of 34 developed during the last months of pregnancy a state similar to that of Case 1. Pituitrin acted in the same way. Both patients were "nervous." Discussing these cases, the author infers that it is not justifiable to make a sharp distinction between primary polydipsia and primary polyuria. As there were no signs pointing directly to the pituitary body, it is doubtful whether the cases should be explained by a lesion of the hypophysis or of the nervous centers

surrounding the third ventricle. (Compare with Houssay, Endocrin., **2**, 94.)—K. M.

(HYPOPHYSIS) Diabetes insipidus; its relation to the hypophysis and the tuber cinereum (Diabetes insipidus, seine Beziehungen zu der Hypophyse und dem Zwischenhirn). Leschke, Ztschr. f. klin. Med. (Berlin), 1917, **87**, 201.

A very interesting study on diabetes insipidus. In this condition urine secretion is increased but the power of concentration by the kidneys is lost. This is manifested when an extra amount of sodium chloride or urea is given. They are excreted just as in normal cases but much more water is required. It may happen that in such tests the concentration of sodium chloride or urea rises, but in that case the concentration of the other constituents of the urine falls; the total concentration as it is measured by the freezing-point remains unaltered. The polyuria depends only on the quantity of ingested salts. If great quantities of water are given they are excreted in absolutely the same way as in normal individuals. Potassium iodide, lactose and sodium ferrocyanide are excreted as in normal cases but they give rise to an increased diuresis.

When no water is given to a healthy person the specific gravity of urine may rise to 1030; in diabetes insipidus it never reaches more than 1010. When not enough water is given, uremic symptoms are observed, the freezing point of the serum falls and the concentration of chloride and urea in the serum may reach a very high level. Most probably the thirst in diabetes insipidus is caused by a local stimulation of the cortex of the brain by the increased amount of salt in the blood.

In diabetes insipidus there are two circumstances which may temporarily reduce the quantity of urine. The first one is fever. In the first days of an intercurrent infection, not infrequently the urine quantity becomes quite normal, but this lasts for only a few days. Later the quantity reaches the original height. The second factor influencing diabetes insipidus is injection of a preparation of the posterior lobe of the hypophysis. The anterior lobe has no influence whatever on the secretion of urine.

By fractionate precipitation of an aqueous extract of the posterior lobe with picric acid and methyl alcohol it is possible to get four different substances. One acts on the blood pressure (first increasing, later depressing). A mixture of the second and third fractions acts on the respiration. A mixture of the second and fourth fractions acts on the uterus; the second fraction alone acts on the secretion of urine.

The substance influencing the secretion of urine is a polypeptide. Combination with adrenaline does not increase its action. According to Leschke, diabetes insipidus is not of hypophyseal origin, for total extirpation of the gland has no influence on the secretion of urine if care is taken that the tuber cinereum and its neighborhood are not touched. If the gland and no parts of the brain are destroyed by pathological processes, polyuria is never observed. On the other hand, a piqure in the tuber cinereum produces polyuria. Most probably here the center for the secretion of urine is situated in the immediate neighborhood of the centers of the sympathetic nerves of the eye, the center for heat-regulation and the center for metabolism. Most probably diabetes insipidus is produced by a disease of this center. The hypophysis itself has no relation with it and only when, for example, a tumor of the hypophysis presses this center or a tuberculous process reaches it, polyuria may occur. Also in basal meningitis with a quite normal gland polyuria may be observed. (See also Endocrin., **2**, 94.)—J. K.

(HYPOPHYSIS) Differential diagnosis between temporal lobe cerebral abscess and hypophysis tumor (Zur Differentialdiagnose zwischen otogenem Schläfelappenabszess und Hypophysentumor). Alexander (G.), Wiener klin. Wchnschr., 1916, **29**, 766-768.

A boy of 19 years with a chronic otitis media gradually lost consciousness, but did not develop fever. Except for paralysis of the right occulomotor nerve, he had no symptoms. A puncture of the lobus temporalis was made. No pus was found. The patient died. The post-mortem examination showed a tumor of the hypophysis. During life no symptoms of disease of the hypophysis were present.—J. K.

HYPOPHYSIS diseases exclusive of acromegaly (Symptomatik von Hypophysiserkrankungen unter Ausschluss der Akromegalie). Nonne, Deutsche med. Wchnschr. (Berlin), 1916, **42**, 1338.

Description (very short) of some cases of diseases of the hypophysis.

1. A teratoma with dystrophia adiposogenitalis.
2. A slowly growing glioma of the nervous part of the hypophysis. The symptoms during life were hemianopsia, dystrophia adiposogenitalis and steadily increasing dementia.
3. A sarcoma of the nervous lobe in a man with dystrophia adiposogenitalis and feminine bodily configuration.
4. A case with the same symptoms as 2 and 3 caused by

syphilis of the hypophysis. In this case the serum of the blood gave a positive Abderhalden reaction with hypophysis.

5. Some cases of dystrophia adiposogenitalis caused by congenital syphilis.

6. A case of dwarfism with glycosuria and dementia, in which the serum gave a positive Abderhalden reaction with hypophysis.—J. K.

(HYPOPHYSIS) Dwarfism (Zur kenntnis des echten Zwergwuchses). Röszle, Med. Klin. (Berlin), 1917, **13,** 618.

A theater company of nine dwarfs proved to consist of nine cases of hypophyseal dwarfism.—J. K.

(HYPOPHYSIS) Dwarfism and atrophy of the anterior lobe of the hypophysis (Juveniler Zwerkwuchs bei Atrophie des Hypophysisvorderlappens). Simmonds, Münch. med. Wchnschr., 1919, **66,** 453.

A man of 21 years, height 110 cm., well proportioned, had no beard and no pubic crines. The gonads were infantile. The intelligence was normal. Post-mortem: Atrophy of the anterior lobe of the hypophysis with posterior lobe quite normal. Other organs showed no abnormalities.—J. K.

(HYPOPHYSIS) Dystrophia adiposogenitalis with basal brain tumor (Degenerativ adiposogenitalis bei Hirnbasistumor). Weygandt, Deutsche med. Wchnschr. (Berlin), 1919, **43,** 531.

A girl manifested mental deficiency, paresis of the left leg, very irregular menstruation, exaggerated knee-jerks, optic atrophy, headaches and other signs of increased intracranial pressure. The skiagram showed an enlargement of the sella turcica. She was extremely fat. There was pigmentation of the skin, polyuria and alimentary glycosuria. The serum gave a positive Abderhalden reaction with hypophysis. She had all the symptoms of mania.

Trepanation and puncture of the ventricles was performed. First this had a distinctly good influence, but was followed by deafness. The adiposity disappeared and the patient died in extreme cachexia. Post-mortem examination showed gliosarcoma of the right thalamus opticus, penetrating the pons cerebri, and a cyst between the pons and fourth ventricle. The hypophysis was compressed and only traces of the pars nervosa were found. The other endocrine organs were normal.—J. K.

(HYPOPHYSIS) Dystrophia adiposogenitalis mit Myopathie. von Dziembowski (S.), Deutsche med. Wchnschr. (Berlin), 1917, **43,** 654.

Description of a case of adiposogenitalis in a man of 26 years. The testicles became smaller. Sexual desires disappeared. A skiagram showed the characteristic changes in the sella turcica. The muscles were very flabby, but the electrical reactions, though slow, were normal. A little piece of the biceps was taken for microscopical examination. The histological examination showed few muscular fibres and these, atrophic. There was enormous increase of fatty tissue. The sugar tolerance was increased. First treatment with thyroid, adrenal and testicle was without success. Then twice daily, injection of an ampule of hypophysis was tried with splendid success. The patient lost in weight; after some days the libido sexualis returned and the muscles became thinned with a higher tonus. The author believes that the hypophysis has an influence on the muscles.—J. K.

(HYPOPHYSIS) Hydrocephalus and hypophyseal adiposity (Hydrocephalus mit hypophysärer Fettsucht). Sträussler, Deutsche med. Wchnschr. (Berlin), 1917, **43**, 256; Med. Klin. (Berlin), 1917, **13**, 321; Wiener klin. Wchnschr., 1917, **30**, 252.

Description of a case with a typical X-ray photograph. The description, of only a few lines, is too short and too incomplete for an abstract.—J. K.

(HYPOPHYSIS) Hypophyseal cachexia (Hypophysaire Kachexie). Fraenkel, Deutsche med. Wchnschr. (Berlin), 1916, **42**, 1369-1372.

Description of a case similar to the cases of Simmonds (Endocrinology, **1**, pp. 108 and 264). A woman of 45 years had 11 children. After the last pregnancy, menstruation did not return. She became weaker, lost the axillary and pubic hair and the teeth. She looked older than she really was. She died of cachexia. At the post-mortem examination a destruction of the glandular part of the hypophysis was found; all viscera were normal but extremely small. The other endocrine organs were quite normal.—J. K.

(HYPOPHYSIS) Hypophyseal cachexia (Hypophysäre Kachexie). Reye, Deutsche med. Wchnschr. (Berlin), 1919, **45**, 703.

A very short note without details. The patient (of whom absolutely nothing is told except what is indicated in the caption) gained in weight. The blood pressure was raised, the hemoglobin increased and the psychical symptoms were eased following the administration of hypophysis tablets. Neither symptoms nor dosage are given.—J. K.

(HYPOPHYSIS) Hypophyseal cachexia (Hypophysäre Kachexie). Reye, Münch. med. Wchnschr., 1919, **66,** 453.

A woman with cachexia without a known cause was treated with fresh pituitary glands. The results were very good. Then fresh glands were no more to be had, because the cattle became too scarce. The patient became very cachectic again and began to show symptoms of mental disturbances. There was general edema. She gave the impression of one facing impending death. Then hypophysis was injected. In 2 months 58 injections (of how much? J. K.) were given. She was restored to perfect health.—J. K.

HYPOPHYSIS, its structure and development. Parker (K. M.), Science Progress (Lond.), 1917-18, **12,** 450.

The object of the paper is "to summarize our knowledge of the hypophysis cerebri and thus render it more accessible to the student of biology in all its branches."—T. C. B.

(HYPOPHYSIS) Mental symptoms in acromegaly with presentation of a case. Merriman (W. E.), State Hosp. Q., Utica, N. Y., 1917-18, **3,** 99-105.

The writer is making an effort towards the formation of a fixed "Mental syndrome" resulting from pituitary disturbance. The case cited and the one presented, while exhibiting mental changes, are of the type that one will observe among cases showing intracranial pressure. The mental symptoms pointed to no organic changes, but were of the constitutional type. While Cushing and other observers mention mental deviation in some of their cases, there was no trained psychiatrist to correlate and observe them as should be done.—J. H. L.

(HYPOPHYSIS) Nanosomia infantilis pituitaria. Bauer (J.), Wiener klin. Wchnschr., 1917, **30,** 573.

A man of 22 years with a height of 142 cm. and a weight of 27 kilograms had an infantile skeleton. The testicles were not to be found (cryptorchism?). Male secondary sexual characteristics were lacking; high voice and lymphocytosis were observed. Percussion gave a dullness at the upper part of the sternum (persistent thymus?). The skiagram showed the sella turcica to be extremely small (as a pea). The blood-sugar content was high (0.124%). When 100 grams of glucose were given, alimentary glycosuria occurred. No polyuria nor hemianopsia were present. The blood pressure was low. The thyroid was very small. The patient was an imbecile.—J. K.

(HYPOPHYSIS) Operation der Hypophysis-tumoren. Piffl. Deutsche med. Wchnschr. (Berlin), 1919, **45,** 648. Schloffer, Ibid., **45,** 648.

Of technical surgical interest—J. K.

(HYPOPHYSIS) On the presence of histamine (beta-iminazolylethylamine) in the hypophysis cerebri and other tissues of the body and its occurrence among the hydrolytic decomposition products of the proteins. Abel (J. J.) and Kubota (S.), J. Pharmacol. & Exp. Ther. (Balt.), 1919, **13,** 243.

As a result of extensive investigations covering a period of several years, Abel and Kubota conclude that the plain muscle-stimulating and depressor constituent of the posterior lobe of the pituitary gland is identical with histamine (beta-iminazolyl-ethylamine). Histamine was found to be a widely distributed constituent of animal tissue, organ extracts and enzymatic products, both of animal and vegetable origin. Since histamine occurs to some extent in all tissues, it can not be considered a hormone or substance specific to the pituitary gland. The authors have no explanation to offer at present for the relatively high concentration in which the base is found in the posterior lobe of the pituitary body.—F. F.

HYPOPHYSIS preparations and their therapeutic use. Sajous (L. T. de M.) N. Y. Med. J. (N. Y.), 1916, **103,** 468-9.

A general discussion embodying no new data.—H. W.

(HYPOPHYSIS) Remarks on: "Seven years of hypophyseal medication in practical obstetrics" (Bemerkungen zu: "Sieben Jahre Hypophysen Medikation in der praktischen Geburtshülfe"—Hofbauer). Porges (A.) and Hofstätter (R.), Monats. Geburtsh. u. Gynäk., 1919, **49,** 207.

A brief polemical note.—F. S. H.

(HYPOPHYSIS) Retropharyngeal tumor of hypophyseal structure. Leegaard (F.), Norsk mag. f. laegevid. (Christiania), 1917, **78,** 829.

A report of a unique case. A man of 23 had during four years developed increasing difficulties in swallowing. At operation a soft tumor the size of an apple was removed from between the pharynx and spinal column. The microscopic structure showed close resemblance to the anterior lobe of the normal hypophysis. The tumor is supposed to have developed from rests of the hypophysis pharyngei.—K. M.

(HYPOPHYSIS) Sobre un caso de distrofia adiposo-genital. de Stefano (J.), Semana Méd. (Bs. Aires), 1919, **26,** 535.

A subject 50 years of age showed somnolence, asthenia, polydipsia and polyuria, occasionally glycosuria, accentuated adiposity (weight increase from 80 to 125 kilos), impotency and partial loss of body hair. The sella turcica was normal in form but slightly less than normal size. Vision was impaired but this was more or less due to bilateral cataract. The author believes that the patient had a syphilitic lesion at the base of the brain which affected at the same time the hypophysis and the adjacent cerebral zone.—B. A. H.

(HYPOPHYSIS) The action of pituitrin upon the gastrointestinal tract of man. Pancoast (H. K.) and Hopkins (A. H.), New York M. J., 1917, **105,** 289-292.

By means of Roentgen examinations the effects of pituitrin upon the gastrointestinal tract were studied in 11 cases. It usually exerted a primary depressing influence upon gastric peristalsis or motility and a secondary augmentation. The pylorus was influenced but slightly. In the small intestines the motility was, as a rule, either not affected or was slightly delayed. No appreciable effects were noted upon the large bowel.—H. W.

(HYPOPHYSIS) The development of the hypophysis (Over de ontwickkelingsverschynselen in het hypophysis gebied). Woerdeman (H. W.), Nederl. Tijdschr. v. Geneesk. (Haarlem), 1917, **61,** (I) 955-963.

A study on the embryology of the hypophysis. Of technical interest.—J. K.

(HYPOPHYSIS) The physiology of the pituitary gland. McPeek (C.), Ohio State M. J. (Columbus), 1917, **13,** 161-165.

A general review.—C. McP.

(HYPOPHYSIS) Pituitary extract in concealed accidental hemorrhage. Kidd (W. A.), Brit. Med. Jour. (Lond.), 1917, (ii), 116.

Advocates the use of pituitrin in concealed accidental hemorrhage in pregnancy.—L. G. K.

(HYPOPHYSIS) The uses and abuses of pituitrin. Rawls (J. L.), Va. Med. Semi-monthly (Richmond), 1917, **21,** 535.

Pituitrin is a stimulant of unstriped muscular tissue and finds its chief use on the musculature of the pregnant uterus. It is used to stimulate uterine contractions in cases of inertia when there is no mechanical obstruction to delivery. It produces from one to three prolonged contractions when first administered. If this does not cause delivery, the uterus settles down into regular rhythmical contractions; its action lasts from forty-five minutes to an hour. It is claimed that it will not induce uterine contractions per se, but I have seen several cases with patients at term in which pituitrin apparently did induce uterine contractions. If delivery does not occur within an hour, our custom is to administer a second dose just after delivery and further fortify this with ergotol hypodermatically or ergot by mouth as a prophylactic against post-partum hemorrhage. Pituitrin is a valuable adjunct in curettements for incomplete abortion. It is contraindicated in primiparae whose pelvic measurements are not definitely known; in the early stages of labor without a well-dilated cervix, with the presenting part not engaged; a mal-position or any other form of mechanical obstruction, or merely to hurry the case. Pituitrin is of value as an intestinal stimulant in those cases of distention following abdominal operation and may be used as a prophylactic when a large amount of handling of the abdominal viscera is unavoidable. Of course the surgeon should be sure that he is not dealing with a mechanical obstruction. It is of use in cases of retention of urine and should be tried before catheterization. It is of value also in the treatment of shock. A third use of pituitrin is in hemorrhage when the bleeding shows a tendency to ooze and is not arterial in nature. Johnson states that it is of benefit when administered by mouth over a long period in those cases of idiopathic epilepsy occurring between the ages of fifteen and thirty-five years.—Author's abstract, abbreviated.

(HYPOPHYSIS) Treatment of diabetes insipidus (Zur Behandlung des Diabetes insipidus). John (Gertrude), Med. Klin. (Berlin), 1917, **13**, 366.

As pituitrin is made in England, the author tried to make a German preparation. She found that pituitrin was more active than hypophysis (Hoechst). Pituitrin contains chloreton; hypophysis does not. Is this chloreton responsible for the greater activity? The author does not believe it, for a combination of hypophysis and chloreton has no greater activity than hypophysis alone. Pituitrin is an extract from the whole gland; hypophysis only of the posterior lobe. It is not impos-

sible that the anterior lobe has an internal secretion which may influence the kidneys, though this has not yet been proved.
—J. K.

HYPOPHYSIS tumor (Geschwulst der Hypophysis). Heynemann, Deutsche med. Wchnschr. (Berlin), 1919, **45,** 840.

A very short note. A woman had a tumor of the hypophysis with visual disorders, increasing during pregnancy.—J. K.

HYPOPHYSIS, Tumor of the—. Syndrome adiposo-genitalis. Ricaldoni (A.), Anales de la Fac. de Méd. de Montevideo, 1917, **2,** — (No. 5).

The author presents a case of associated obesity and genital hypofunction caused probably by a neoplasm of the hypophysis. There was complete, bilateral optic atrophy and excavation of the sella turcica.—H. R.

HYPOPHYSIS tumors; two cases surgically treated (Zwei operierte Fälle von Hypophysistumoren). Sänger, Deutsche med. Wchnschr. (Berlin), 1919, **45,** 592.

I. A man of 39 years had headache, difficulty in walking, bitemporal hemianopsia, enlarged sella turcica and atrophy of the optic nerves. At operation a hypophyseal tumor was found, and part of it removed. After operation there was at first some improvement; hair began to grow on the chest. After a year, however, loss of hair, loss of sexual function, increase of fat and growth of hands and feet were evident. A combination of acromegaly and dystropia adiposo-genitalis had developed.

II. A woman of 42 years exhibited cessation of menstruation and bad vision. A skiagram showed an abnormal shadow in the place of the sella turcica. Hypophysectomy was performed. At first the vision improved a little. Then the patient became blind and very stout. The axillary hirci dropped out and for the most part the pubic hair was lost. She had no menstruation. Here dystrophia adiposo-genitalis developed.—J. K.

(HYPOPHYSIS) Two cases of diseases of the hypophysis (Zwei Fälle von Hypophysiserkrankungen). Mann, Münch. med. Wchnschr. 1919, **66,** 493.

I. A girl of 29 years. Six years ago menstruation ceased; headaches, vomiting, attacks of unconsciousness, bitemporal hemianopsia and fatness were observed. In the skiagram an enlarged sella turcica was indicated. Diagnosis: Dystrophia adiposo-genitalis.

II. A married woman had three children, all born dead. The Wassermann reaction was negative. After the last confinement acromegaly developed; the patient began to see badly, and menstruation ceased. The X-rays showed enlarged sella turcica and enormous sinus frontalis on both sides. Operation disclosed a cyst in the hypophysis. The tumor was emptied. After the operation, marked improvement, better vision and restored menstruation occurred.—J. K.

(HYPOPHYSIS) Un caso de diabetes insípida. Dameno Enrique, Prensa Méd. Argentina, 1919, **5,** 345.

The case is reported of an infant, supposedly a hereditary syphilitic, who had visual disturbances, post-neuritic optic atrophy and slight exophoria. The sella turcica was normal in shape but slightly enlarged. The urine amounted to four litres daily. Mercurial treatment brought about temporary amelioration of the symptoms, but after a time they returned in aggravated form with ocular pain. Death followed. The author reviews the pertinent literature and concludes that, in the case reported, the lesion was near the optic chiasma and probably in the hypophysis.—B. A. H.

(HYPOPHYSIS, ADRENAL) The occurrence of pituitrin and epinephrin in fetal pituitary and suprarenal glands. McCord (C. P.), West. M. Rev. (Omaha), 1917, **22,** 412-414. Reprinted from J. Biol. Chem. (N. Y.), 1915, **33,** 435-438.

McCord sought to establish the earliest period in fetal life at which it was possible to detect the presence of pituitrin and epinephrin in fetal pituitary and suprarenal glands. Fresh bovine embryos at all stages of development were secured, the pituitary and suprarenal glands dissected out and protein free saline extracts prepared. Physiologic tests to identify epinephrin and pituitrin were carried out for the graded series of glandular extracts. Characteristic reactions were obtained both for epinephrin, and pituitrin in extracts from bovine fetal glands during all developmental stages in which the macroscopic recognition of the glands was possible. For the pituitary gland, this period is from the eighth week to the full term; for the suprarenals the period is from the sixth week to full term. The presence of the active principles of these glands at so early a developmental period suggests that the fetus in utero may be under the influence of its own as well as the maternal endocrine glands.—Author's Abst.

HYPOPHYSIS, ADRENAL and **THYROID** glands, **The biochemistry of (Zur chemischen Biologie der Nebenniere, Hy-**

pophyse und Thyreoidea). Richter (E.), Deutsche med. Wchnschr. (Berlin), 1919, **45**, 709.

If to 6-10 cc. distilled water, 0.25 cc. of 1% solution of adrenalin is added and raised to the boiling point, and then 0.25-0.5 cc. of cold 1.1% solution of sodium-gold chloride is added, this salt is reduced and a red solution of colloidal gold is formed. Thus it is proven that adrenalin has reducing properties. The reduction time may vary from 15 minutes to 8 days. Adrenalin solution in acetone or alcohol gives a similar reaction. The author believes that this reduction is precisely the opposite to oxidation in the lungs. He believes also that the pigmentation of the skin in Addison's disease is due to a failure of reducing power leading to oxidation of the normal pigment.

The author has prepared reducing substances also from the thyroid and hypophysis. Similar material can be obtained from the cerebrum, ovary and testis and, in traces, from the thymus. Reducing substances can not be obtained from lymph glands, salivary glands, liver, kidney or cerebellum, it is stated.

(The demonstration that certain gland substances have reducing power has little significance in the absence of proof that such are contributed to the blood stream. The author naïvely adds the information that the reductions reported take place satisfactorily only in acid solutions, free from protein, conditions which are never present in the body.)—J. K.

(HYPOPHYSIS, THYROID) On the functional correlation of the hypophysis and the thyroid. Larson (J. A.), Am. J. Physiol. (Balt.), 1919, **49**, 55-89.

An extended survey of the literature on the subject establishes the fact that the removal of either the hypophysis or the thyroid gland causes definite changes in the structure of the other. The consensus of opinion is that following thyroidectomy the hypophysis undergoes hypertrophy, probably in the anterior lobe. The author found that the administration of anterior lobe to thyroidectomized rats exerts a very beneficial effect upon maintenance and growth, and also definitely prolongs life.

This beneficial effect might indicate a direct substitution in which the pituitary autacoid takes the place of the thyroid hormone in a compensatory effort to establish normal metabolism, or the results might be due to a stimulating effect upon the total metabolic processes. The objections to the former view are twofold: "the failure to find iodine in the hypophysis after thyroidectomy and the possibility that the hypertrophy indicates pathological processes. On the other hand, there is

the possibility that the hypertrophy is physiological and that the iodine might not be a necessary factor." It is held that the chemical structure of the known autacoids of the two glands is sufficiently similar to indicate the possibility of substitution. That similarities in function exist is revealed by the fact that removal of either gland causes disturbances in carbohydrate and fat metabolism, as well as sexual activities and general growth of the body. However, before a definite decision for or against the idea of a direct functional reciprocity can be reached, more evidence is needed.—L. G. K.

INTERNAL SECRETION and insanity. Borberg (N. C.), Bibliotek f. Laeger, Copenhagen, 1918, **110,** 45-63, 126-130, 187-194, 231-242, 338-370.

The author has examined anatomo-pathologically 40 cases of insanity (maniac-depressives, schizophrenia, paraphrenia, general paralysis, etc.); further he had many other cases as controls. The results of the examinations are the following: In manio-depressive insanity, schizophrenia, paraphrenia and epilepsy he found in some few cases slight changes of the endocrine glands, specially sclerosis in case of implication with tuberculosis, but no important changes. In case of delirium there was atrophy of the colloid in the thyroid gland and of the visible lipoid in the adrenal cortex. In general paralysis there were inflammatory phenomena in different organs with fibrosis and infiltration of plasma cells. In senile and arteriosclerotic dementia, the ordinary senile changes; in climacteric insanity (also virile climacterium) more marked changes in the thyroid and sexual glands. The author concludes that endocrine changes have some role in some cases of insanity, but it is impossible to draw anatomical parallels to the currently accepted psycho-pathological groupings.—K. H. K.

LIPODYSTROPHY in a girl of 11 (Lypodystrophie bei einem elfjährigen Mädchen). Nobel (E.), Wiener klin. Wchnschr., 1919, **32,** 353.

A case is described in which total atrophy of the fat tissue occurred. Possibly this was due to endocrine defects, but the author gives no definite evidence that such was the case. A good clinical description of the case is offered, but it comprises little of endocrine interest.—J. K.

LIPODYSTROPHIA progressiva, 3 new cases. Neel (A. V.), Hospitalstidende (Copenhagen), 1918, **61,** 989-996.

The author suggests that besides the cases of lipodystro-

phia of the original Simons type, with extreme emaciation of the face and arms, there exists a type with a considerable adiposity of the lower extremities but without emaciation of the upper ones. The author describes 3 such cases. (It seems to the abstracter doubtful if these cases really belong to the originally described lipodystrophia.)—K. H. K.

(MENSTRUATION) On the cause of the menstrual hemorrhage (Sur la cause de l'hémorragie menstruelle). Wallich (V.), C. R. Soc. Biol. (Paris), 1919, **82,** 405-407.

Of no endocrine interest.—L. G. K.

MYOPATHIES, Primary—. Naccarati (S.), New York M. J., 1917, **105,** 351-353.

Report of a case of scapulo-humeral variety of primary myopathy. X-ray examinations of the head did not show any particular abnormality nor pineal shadow.—H. W.

OSTEOMALACIA, Case of—and infantilism, with horseshoe kidney and interstitial nephritis. Cameron (H. C.), Proc. Roy. Soc. Med., Sect. Dis. Child. (Lond.), 1918, **11,** 22.

At autopsy no abnormality was detected in the thyroid or other ductless glands.—L. G. K.

OSTEOMALACIA, Case of—and infantilism, with renal deficiency. Cameron (H. C.), Proc. Roy. Soc. Med., Sect. Dis. Child. (Lond.), 1918, **11,** 23-25.

Not of endocrine interest.—L. G. K.

(OSTEOMALACIA) Osteogenesis imperfecta and its relation to osteomalacia (Ueber Osteogenesis imperfecta und ihre Beziehung zur genuinen Osteomalacie). Eiken (T.), Beitr. z. pathol. Anat. (Jena), 1919, **65,** 285.

Description of a case in which microscopical examination showed a diminished formation of bone tissue and a low content of lime. Probably there is a relation between osteogenesis imperfecta and osteomalacia. This article includes no specific endocrine data.—J. K.

(OSTEOMALACIA) Starvation osteomalacia and its relation to tetany (Zur Klinik der Hunger-osteomalazie und ihrer Beziehungen zur Tetanie). Schlesinger (H.), Wiener klin. Wchnschr., 1919, **32,** 336.

In ordinary cases of osteomalacia the bones of the skull are almost never affected. But in cases due to starvation the cranial bones are nearly always extremely painful. There are cases in which the skull is affected without any disease manifestation in the pelvic bones. More than 50 per cent of the cases reported had goitre. There is probably an etiologic connection in such cases. But that the parathyroids also play a part is indicated by the fact that latent or even frank tetany was observed. The osteomalacia and tetanic symptoms disappeared simultaneously. Occasionally starvation osteomalacia is unilateral in its manifestation. That the ovary plays an unimportant part in the development of the disease is indicated by the fact that it is frequently observed in men. It is most probably a pluriglandular condition.—J. K.

(OSTEOMALACIA) The mono- and pluri-glandular symptoms of non-puerperal osteomalacia (Über den mono- und pluriglandulären Symptomen Komplex der nichtpuerperalen Osteomalacie). Curschmann (H.), Deutsch. Arch. f. klin. Med. (Leipzig), 1919, **129,** 93.

Osteomalacia is not seldom seen after the onset of the menopause. It is frequently combined with diseases of endocrine glands. Curschmann describes a case of osteomalacia combined with Graves' disease in a woman of 62, osteomalacia in a woman of 36 with amenorrhoea and Graves' disease, and seven cases of osteomalacia with symptoms of hyperthyroidism without the classical manifestations of Graves' disease. Most women were at an age when a hyperfunction of the ovary could not be the cause of the osteomalacia. It is probable therefore that in these cases the thyroid is capable of disturbing the calcium metabolism and thereby causing osteomalacia. Though they are rare there exist cases of osteomalacia with diminished function of the thyroid. Curschmann describes a case of a woman with amenorrhoea and chlorosis who at first exhibited Graves' disease; later on, myxoedema developed; then osteomalacia and tetany occurred. In another case osteomalacia and myxoedema were observed at the same time; in a third, the myxoedema was preceded by osteomalacia.

All patients with osteomalacia showed many symptoms of sympathicotonia and showed dilatation of the pupil when adrenalin was dropped into the eye.

It is certain that the parathyroids also may play a role in osteomalacia. The important part they play in calcium metabolism is well known. A combination of osteomalacia with tetany is not rare.—J. K.

(OVARY) Alternating periodic ovarian swellings. Ries (E.), J. Am. M. Assn. (Chgo.), 1919, **73**, 100-103.

The swellings tended to appear on alternate sides, from eight to fourteen days before the onset of menstruation. They were due to corpus luteum cysts. Four cases are described.

—R. G. H.

(OVARY) Further clinical experience with corpus luteum organotherapy, with special reference to the soluble aqueous extract. Dannreuther (W. T.), New York M. J., 1917, **106**, 731-735.

From a consideration of fifty clinical cases, the author concludes that the soluble extract of corpus luteum is a better therapeutic agent than the desiccated preparations. Subjective symptoms, such as vertigo and nausea, so often complained of by patients ingesting desiccated gland are seldom noted following injections of the soluble extract. Over-dosing with the soluble extract is usually manifested by headache. Therapeutic results are more rapidly attained and after the influence of the aqueous extract has become apparent, the desiccated extract maintains the improvement. Doses of 15 minims are given at irregular intervals, not oftener than every other day.

—H. W.

(OVARY) Further investigation of the female genital hormones (Weitere Beiträge zur Lehre von der inneren Sekretion der weiblichen Genitalien). Felner (O.), Wien. klin Wchnschr., 1916, **29**, 930.

The author discusses the question whether in pregnancy the secretion of the ovary continues. He extracted from the ovary and from the placenta a lipoid. Injection of these lipoids in animals produces the same changes as those of pregnancy (hypertrophy of the uterus and of the mammae; typical changes in the mucous membrane of the uterus; growth of the thyroid, etc.). Extracts of ovaries including corpus luteum show a greater activity than the extract of corpus luteum alone. In the pregnant cow mostly one ovary has no corpus luteum; extracts of such ovaries have the same action when injected in a rabbit as extracts of an ovary with a corpus luteum. Hence the interstitial cells of the ovary have an internal secretion; this secretion continues, also, during pregnancy as is proved by these experiments.—J. K.

OVARY, Insufficiency of the—(Sindrome de insuficiencia ovárica). Valenzuela (R. J.), 1918, Thesis of Buenos Aires, No. 3520.

Valenzuela shows two cases of ovarian insufficiency treated with success by ovary organotherapy. No new data are offered.—G. P. G.

(OVARY) The endocrine function of the ovary and mammary secretion (La función endocrina del ovario y la secreción mamaria). Pepe (R.), Thesis of Bs. Aires, 1918.

Pepe gives the results obtained by him and Coni Bazan (Endocrin. 1918, **2**, 182) in lactating women with scanty milk secretion. He concludes: 1, That there exists an intimate relation between endocrine functions of the ovary and the mammary secretion, as is demonstrated by animals and clinical experiments. 2, That there exist a hypogalactia concurrent with the syndrome of ovarian insufficiency, in which case the homo-organotherapy by corpus luteum or ovary serves as a regular and efficacious galactogogue. Pepe reports eleven cases treated with success.—G. P. G.

(OVARY) The action of ovaradentriferrin (Ueber die Wirkung des O.). Koslowsky, Deutsche med. Wchnschr. (Berl.), 1919, **45**, 746.

Ovaradentriferrin is a pharmaceutical preparation frequently used in Germany. The author reports excellent results from it. No significant data otherwise are included.—J. K.

(OVARY) The corpus luteum in therapeutics. Sajous (L. T. de M.) New York M. J. (N. Y.), 1916, **103**, 227.

The most important pre-requisites to success in the use of corpus luteum are: 1, The selection of a preparation made exclusively from the corpora lutea of pregnant animals and 2, due attention to the fact that the action of the drug is frequently slow in asserting itself, and hence should be given up only when thorough trial has demonstrated its lack of efficacy.—H. W.

(OVARY) The influence of sexual intercourse on the ovary. (Der Einfluss des Geschlechtsverkehrs auf den Eierstock). Bondi (J.), Zentralbl. f. Gynäk. (Leipzig), 1919, **43**, 258.

Sexual intercourse has a remarkable influence on the function of the ovary in healthy and ill women. Often dys-

menorrhea disappears, the menstruation becomes regular, the quantity of lost blood becoming normal. Very often chlorosis and nervous complaints disappear after marriage. Therefore the author has examined the influence of copulation in rabbits. To avoid complications with pregnancy he first ligated and cut both tubes. After sexual intercourse the ovaries are much more developed than in virgin control animals. Especially the glandular elements are largely developed. The controls showed very often a cystic degeneration of the ovaries. This corresponds to the well known fact that such degeneration is much more frequently observed in unmarried than in married women.—J. K.

(OVARY) The interrelationship between ovarian secretion and uterus. Floeckinger (F. C.), Texas. State J. M. (Ft. Worth), 1919, **14**, 322.

The importance of the relationship of the internal secretions to radical operation on the female generative tract has been strongly emphasized. From the immense literature on the subject, the author extracts the facts which led him to study the relationship between the uterus and ovarian secretion.

In those cases in which the ovaries in the child-bearing period must be sacrificed, the author comes to the conclusion that when complete ablation has been done, the neurotic symptoms of artificial menopause have been very light, and only about 50 per cent show them. If neurotic symptoms appear, they last about six months, whereas when the uterus was preserved they lasted much longer and were more severe. The psychic factor is very important.

Abbreviated from Author's abstract, South. M. J. **12**, 499.

(OVARY) Ueber die innere Sekretion des Eierstockes. Scipiades (E.), Arch. f. Gynäk., 1918, **108**, 157-223.

An extensive historical resumé of the influence of various preparations of the ovary on menstruation. Clinical reports are given indicating the favorable effects obtained when such preparations are used in disturbances of menstruation indicating the dependence of a properly regulated functioning upon adequate internal secretion.—F. S. H.

(OVARY CORPUS LUTEUM) Non-puerperal ovarian abscess and abscess of the corpus luteum (Abcès non puerperaux de l'ovaire et abcès du corps jaune). Chomé (E.), Arch. mens. d'obst. et de gyn. (Paris), 1919, **8**, 113-167.

A historical resume of the literature on ovarian and corpus luteal abscesses. Gross and microscopic studies with plates of the author's cases, together with the pathology, clinical findings, bacteriology, etiology and discussion of the physiological disturbances present with abscesses in ovaries or corpus luteum are given. These abscesses usually cause severe disturbance of the menstrual cycle together with modifications of the uterine mucosa analogous to those found in the pre-menstrual period.
—F. S. H.

(OVARY THYROID) Ovarian tumor of thyroid structure. Platou (E.), Norsk Mag. f. laegevid, 1916, **77**, 514.

The tumor was removed from a woman of 54; it showed the structure of thyroid with colloidal masses. The presence of ascites provoked suspicion of the tumor's being malignant.
—K. M.

(PANCREAS) A case of acute diabetes, with comments, especially in regard to acidosis. Smith (W. G.), Lancet (Lond.), 1916, **(i)**, 1115-1119.

Contains criticisms of many of the tests for oxybutyric acid, acetone and acetoacetic acid in urine, and points out various commonly held errors in regard to glycosuria, acidosis, etc.—L. G. K.

(PANCREAS) A lay description of diabetes. Coues (W. P.), Boston M. & S. J., 1917, **176**, 536.

Quotation from Bazán's "The Swan of Villamorta," describing the sensations of a Spanish statesman suffering from diabetes. (Fiction).—H. W.

(PANCREAS) A new conception of diabetes and its treatment. Heffron (J. L.), N. Y. State J. M. (N. Y.), 1916, **16**, 69-71.

A report of very favorable results obtained by the author with the now well known Allen treatment of diabetes.—J. P. S.

(PANCREAS) A note on the simulation of diabetes mellitus. Blumer (G.), Boston M. & S. J., 1916, **174**, 48-50.

Report of case. In suspected cases of fraud catheterized specimens of urine should be examined and the patient isolated for close observation.—H. W.

(PANCREAS) A statistical study of the mortality from diabetes mellitus in Boston from 1895 to 1913, with special

reference to its occurrence among Jews. Morrison (H.), Boston M. & S. J., 1916, **175**, 54-57.

The total number of deaths occurring between 1895 and 1913 was 229,468. Of this number, 8,775 died from diabetes mellitus. There has been a steady rise in the death rate from diabetes from 7.1 per 100,000 inhabitants in 1895 to 21.3 in 1913. The ratio of the number of deaths from all causes to those due to diabetes was 0.018 among the Jews and 0.007 among non-Jews, hence, death from diabetes occurred about two and a half times as frequently among the Jews as among their neighbors. The largest number of deaths from diabetes occurred among those of Irish parentage, being 656 out of the 1,770, or more than one-third of the total. This figure is not out of proportion to the population. Only eleven deaths from diabetes mellitus occurred among negroes during the same period. Contrary to usual statements there were 958 females as compared with 817 males. The largest number of deaths occurred in persons of the seventh decade. Diabetes mellitus is more commonly found in large cities among individuals and races who are constantly under physical and nervous tension. This disease is particularly prevalent among Jews, not because of ethnic peculiarities, but because a severe environment during many centuries has developed a nervous type easily thrown out of balance.—H. W.

(PANCREAS) Blood sugar in human diabetes. Stepp (W.), Zentralbl. f. klin med., —, **46**, 377; Münch. med. Wchnschr., 1919, **66**, 771.

Data published elsewhere. Abst. Endocrin., **3**, 191.

(PANCREAS) Cases of diabetes (Diabetesfälle). Gerhardt, Münch. med. Wchnschr., 1919, **66**, 339.

Two very ordinary cases of diabetes. No new data.—J. K.

(PANCREAS) Cataract und Diabetes. Wessely, Münch. med. Wchnschr., 1919, **66**, 281.

Describes the difference between the cataract in old patients with concurrent diabetes and the real diabetic cataract. Chiefly of technical ophthalmological interest.—J. K.

(PANCREAS) Definition and detection of acidosis in diabetes mellitus. Hornor (A. A.), Boston M. & S. J., 1916, **175**, 148-152.

The acidosis of diabetes mellitus, aside from its clinical picture of exaggerated respiration, drowsiness and rapid pulse, may be defined as a condition in which the carbon dioxide tension in the blood and, consequently, in the alveolar air is reduced. When the acetone bodies in the blood and urine are increased and associated with this there is a rise in the excretion of ammonia, and glycosuria is marked. The detection of glycosuria, the demonstration of a positive ferric chloride reaction, and the determination of a diminution in the alveolar carbon dioxide tension are procedures suitable for bedside use.—H. W.

(PANCREAS) Observations on the blood sugar in diabetes mellitus. Rogers (O. F.), Boston M. & S. J., 1916, **175,** 152-156.

Diabetics have a higher blood sugar when they are excreting sugar in the urine than they do when the urine is rendered sugar free. The threshold of sugar varies in different diabetic individuals and apparently in the same individual at different times. Sometimes the blood sugar returns to normal under treatment, especially in the milder cases. A persistently elevated blood sugar may be an indication of the greater severity of the disease, or it may occur in apparently mild cases, especially if there is renal impairment. By keeping the carbohydrate intake well below the limit of tolerance, as shown by the appearance of glycosuria, it has been found that the blood sugar will almost, if not quite, sink to normal. Experimentation leads to the belief that efficient treatment can be carried out in most instances, using the urinary sugar alone as the therapeutic guide.—H. W.

(PANCREAS) Diabetes and surgical diseases (Diabetes und chirurgische Erkrankungen). Werland, Münch. med. Wchnschr., 1919, **66,** 740.

Discusses the question whether diabetes can have a traumatic origin. Probably a traumatic diabetes exists.

Diabetes is never a contraindication to an absolutely necessary operation.

No new data.—J. K.

(PANCREAS) Diabetes and war (D. und Krieg). Gottstein (A.) and Umber (F.), Deutsche. med. Wchnschr. (Leipz. u. Berl.), 1916, **42,** 1309-1311.

The first part of this article is concerned with a statistical study of the morbidity of diabetes in Germany, especially in Berlin and Charlottenburg. Accurate statistics of this nature

are said not to have been available before the late war. Of the cases collected 57 per cent were males and 59 per cent females. In Charlottenburg the morbidity rate was 2.3 per 1000; in lesser Berlin the rate was 1.2 to 1.3 per 1000. Approximately 75 per cent of the patients were between 40 and 70 years of age. Up to 50 years, the disease was more common among men; between 50 and 70, women predominated. Diabetics among the civil population appeared to suffer during the war, probably because of the limitations as to diet. Among the soldiers, officers and privates, the fatigue of body and soul ("körperlichen und seelischen Strapazen") incident to operations at the front did not appear to have any very marked, deleterious effect upon those suffering from the disease. The authors were convinced that the experiences of men at the front did not have an influence in causing the development of diabetes unless there was a family tendency to it.—J. P. S.

(PANCREAS) Diabetes mellitus, a simple dietetic treatment in—. Williamson (R. T.), Brit. M. J. (Lond.), 1917 (i), 154.

A diet of cream, eggs, milk and beef tea is recommended. It is said often to succeed in freeing the urine of sugar when other diets have failed.—L. G. K.

(PANCREAS) Diabetes mellitus and syphilis. Barach (J. H.), Boston M. & S. J., 1917, **176**, 58-60.

Report of three cases in which the spirochaeta pallida was active and in which the clinical symptoms of diabetes mellitus appeared. According to the author syphilitic pancreatitis is a comparatively common condition.—H. W.

(PANCREAS) Diabetes mellitus in children (—im Kindesalter). Kleinschmidt (H.), Med. Klin. (Berlin), 1916, **12**, 1277-1279.

The prognosis of diabetes mellitus in children is not bad when they are properly treated. It is not enough to give a diet free from carbohydrates. The proteins and fats must be given in quantities not higher than the tolerance for these substances. Intercurrent diseases (measles, parotitis, etc.), may cause coma.
—J. K.

(PANCREAS) Diabetes Mellitus, The etiology of—, and the diet and condition of life during the war. Williamson (R. T.), Brit. M. J. (Lond.), 1918 **(i)**, 139-141.

The histories of 300 cases show the following as predisposing causes: (1) prolonged great excess of sugar, sweet food

or sweet drinks (alone or combined with other predisposing factors) in 31 per cent; (2) prolonged and intense mental anxiety, worry, overstrain or sudden mental shock (alone or combined with other factors) in 40 per cent; (3) family history of diabetes (alone or combined) in 25 per cent. No definite predisposing factor was discovered in 19 per cent. In the author's opinion war time food restrictions should lessen the number of cases caused by an excessively sweet diet, while worry and shock would become greater predisposing factors.
—L. G. K.

(PANCREAS) The importance of regulating the fat-intake in diabetes mellitus. Cammidge (P. J.), Brit. Med. J. (Lond.), 1918 **(i)**, 393-395.

Regulation of the fat intake is important for three reasons. (1) There appears to be a tendency to imperfect utilization of fat in diabetes which is not dependent upon any other feature of the disease, although its extent corresponds roughly to the severity of the disorder. (2) The complete oxidation of the fats in the tissues is dependent upon the ability of the tissues to utilize carbohydrates, consequently if the tolerance for carbohydrates is slight ketonuria and acidosis occur with even a small amount of fat in the diet. (3) Attempts to induce a high level of nutrition by feeding fat results in an aggravation of the diabetic condition similar to that which follows a like attempt with carbohydrate or protein, although the effects are slower and more insidious. The blood sugar is increased, perhaps by a decrease in permeability of the kidneys for sugar, long before glycosuria occurs. It is evident from these facts that it is just as important to ascertain the fat tolerance of the patient as it is to determine his carbohydrate and protein capacity. Such an estimation is best made by Bloor's method for determining the lipoid value of the blood. However, if sufficient care be taken, glycosuria can usually be prevented if the fat intake is so adjusted that, while further loss of weight is guarded against, progressive gain is prevented. This, quite contrary to the older teaching, is the ideal to be aimed at in all cases.—L. G. K.

(PANCREAS) Diabetes mellitus, The modern treatment of—. Leyton (O.), Brit. M. J. (Lond.), 1917, **(i)**, 252-254.

A summary of three lectures published elsewhere giving details of the Allen method of treatment.—L. G. K.

(PANCREAS) Diabetes mellitus, The new dietetic treatment of—. Cammidge (P. G.), Brit. M. J. (Lond.), 1917 **(i)**, 503-505.

In the observation of over 500 cases of diabetes the author discovered indications of chronic catarrh of the upper intestinal tract in 71 per cent of the patients, and it is his opinion that the alimentary rest involved in Allen's treatment benefits the intestine rather than the pancreas. His experience is that evidence of advanced cirrhosis of the pancreas in diabetics is comparatively uncommon, but signs of some interference with the digestive functions of the gland are met with in 72 per cent of the cases. In 67 per cent there are also indications that the liver is functioning imperfectly, while in 27 per cent the hepatic disturbance is apparently more pronounced than the pancreatic. He therefore recognizes three types: (1) the pancreatic, (2) the hepatic, (3) the pancreo-hepatic. Patients of the first type are not materially benefited by starvation and with them it is important to secure adequate nourishment rather than worry over the traces of sugar they generally pass.

Strictly speaking, the hepatic type does not come under the heading of diabetes, for although a reducing substance is passed in the urine, it is not a sugar but an alpha-ketonic acid, pseudo-laevulose. This is probably derived from protein. A diet low in protein is best suited to this class. An abundance of green vegetables with dextrinized starches or pure dextrose should be given. Other foods are added later, but proteins should be used sparingly.

The pancreo-hepatic type is probably a development of the intestinal type, and corresponds to what has been termed "gouty" glycosuria. A short period of fasting generally benefits such cases.

Starvation followed by a largely vegetable diet should render coma from acidosis extremely rare, but the following three points must be kept in mind: (1) There is more danger of serious acidosis during the starvation of fat than of thin diabetics; (2) when acidosis is present the patient should be prepared for starvation by a fat-free, protein-poor diet for several days; (3) an initial increase in the acidosis is to be expected in most cases, but should not put a stop to the treatment unless it assumes threatening proportions. Exercise reduces the length of the fast period. It is important to see that the patient be kept in nitrogen equilibrium. Also the amount of fat given should be carefully regulated. At regular intervals the whole level of the diet should be materially reduced to avoid overtaxing the defective metabolic functions of the patient.—L. G. K.

(PANCREAS) Diabetic acidosis. Cammidge (P. J.), Am. Med. (Burlington, Vt.), 1916, n. s. **11,** 363-373.

In the acidosis of diabetes mellitus there is not only an abnormal formation of acid products arising through defects of metabolism, but also an exhaustion of the tissues in the base-forming, acid-neutralizing elements. Of these elements, potassium, sodium, calcium and magnesium have a definite distribution in the body, and their presence in their normal quantitative relations is necessary to the proper functioning of the different organs. Cammidge estimated the loss of calcium and magnesium from the body in cases of acidosis of diabetes. The acid products giving rise to acidosis have a selective affinity for various bases, butyric acid, for instance, tending to combine with the heavy metals, calcium and magnesium. The formation of ammonia appears to be the mechanism specially concerned with the maintenance of a normal equilibrium between the hydrogen and hydroxyl ions of the blood. But the concentration of these ions in the blood is not necessarily a reliable index to the impoverishment of the tissues in bases. The terminal symptoms of a progressive acidosis will depend upon the relative rate of exhaustion of the tissues in bases and the power of the body to prevent changes in the blood which interfere with the mechanism of respiration. Two main types are therefore possible; one, the classical type, in which death occurs with air hunger and typical coma, in consequence of the blood changes before the effect of the impoverishment of the tissues in bases has given rise to noteworthy symptoms; the other type in which the blood changes do not develop, and death occurs as a result of functional disturbances in organs essential to life, following their depletion of essential bases below the working level. A vegetable diet is important in the treatment of diabetes first, because vegetable proteins may be expected on theoretical grounds to give rise to less acetone and kindred substances than animal protein, and second, because, normally, the store of metallic bases in the body is chiefly derived from fruits and vegetables.—J. P. S.

(PANCREAS) Diabetic acidosis. Croftan (A. C.), Am. Med. (Burlington, Vt.), 1916, n. s. **11,** 417-420.

The fats are probably the chief source of the betaoxybutyric and diacetic acids in diabetes. For this reason the fat tolerance of these patients should be determined just as much as the sugar tolerance, in order to detect fat-sensitive patients. Prevention of acidosis in the milder grades of diabetes is not very difficult. In the more severe grades it is much more difficult, but the end to be attained does not warrant keeping

the patient permanently sugar-free by starvation if to do so keeps him thin and undernourished. In the very severe types in childhood and adolescence it is necessary to employ starvation. But the effect of fasting on acidosis in these cases varies and the element of idiosynerasy is pronounced, hence this method of treatment should be carried out only under the most accurate control and with all emergency measures at hand. Croftan is of the opinion that some of the highly toxic products of protein digestion, which is also deranged in diabetes, may play a part in diabetic coma.—J. P. S.

(PANCREAS) Diabetic coma. Riely (L. A.), J. Okla. State M. Assn. (Muskogee), 1919, **12,** 43.

The study of diabetes and diabetic coma is essentially a study of the chemistry of the body and its excretions. Diabetic coma occurs only when the urine contains oxybutyric acid. High grades of acetonuria are often associated with lipemia. Premonitory symptoms of coma are lassitude; epigastric pain; occasionally vomiting; restlessness, speech becoming thick and incoherent, growing dull and then passing into coma, and CO_2 alveolar tension dropping below 20. Breathing is of the Kussmaul or alcoholic type. Collapse often results fatally in twenty-four hours. Children are especially liable to coma. Predisposing factors are constipation, excessive fatigue, ether anesthesia, acute infections and sudden changes in diet. Coma may come on slowly, rapidly or intermittently. Riesman's ocular sub-tension may be present. Bladgett says a pathognomonic sign is soreness on deep pressure over the pancreas. Treatment consists of a bed. Warm cloths allay nervousness and discomfort. Enemas should be used, but not cathartics. Liquids, 1000 cc., may be given slowly within six hours. Coffee, tea, broth and water are advisable. If the patient is nauseated, give the fluids per rectum or intravenously. For the heart, digitalis is advisable. Coma never develops in edematous cases. Sudden and severe loss of weight nearly always precedes coma.—From author's abstract, South. M. J. **12,** 453.

PANCREAS, Diseases of the—as a cause of retarded growth in children (Pankreaserkrankungen als Ursache des Nichtgedeihen von Kindern). Passini, Deutsche med. Wchnschr. (Berlin), 1919, **45,** 851.

Of no endocrine interest.—J. K.

(PANCREAS) Habitus, and especially that of diabetes (Ueber Habitus in allgemeines und diabetischen Habitus im Besonderen). Bondi, Münch. med. Wchnschr., 1919, **66,** 544.

Patients with diabetes may show as a characteristic habitus: a red face, inclination toward adiposity, hairy chest and a slight degree of protrusion of the eyes.—J. K.

(PANCREAS) Elements of success in the treatment of diabetes. Safian (J.), New York M. J., 1917, **106**, 357-359.

A preliminary report upon the treatment of diabetes. The author uses a modified Allen treatment and insists upon hospital care during the beginning of the treatment.—H. W.

(PANCREAS DIABETES) Experiments on the glycogen question. (Untersuchungen zur Glykogenfrage). Fahr, Deut. med. Wchnschr. (Leipz. u. Berl.), 1916, **42**, 1337.

Dogs were rendered diabetic by extirpation of the pancreas and injection of adrenalin. The glycogen content of the blood was not increased; in some instances it was decreased, while the blood sugar was increased. The glycogen of the blood is exclusively in the leucocytes. The occasionally observed decrease of glycogen in the blood of diabetic animals is explained by the reduction in the number of leucocytes. The author formulates the hypothesis that glycogen is always bound in cells; if the glycogen leaves the cells and reaches the fluid part of the blood it is promptly changed into sugar; the sugar circulating in the blood is transformed into glycogen and stored in the cells as soon as the amount present exceeds the individual needs of the cells. The glycogen found in the cells of the kidney in diabetes is believed by the author to be formed in this manner.—J. P. S.

(PANCREAS) Glycosuria in diabetes after exceeding the carbohydrate tolerance limit. (Over de glucosurie van diabetes lijders na overschrijding der tolerantie). Steensma (F. A.), Nederl. Tijds. v. Geneesk. (Haarlem), 1919, **63**, (ii), 312.

It is often thought that when the tolerance limit for carbohydrates is surpassed all carbohydrates above this amount are excreted as glucose. This is not true; there are people who have traces of glucose in the urine when they take 400 grams of carbohydrate daily, but who become sugar free only on a diet absolutely lacking in carbohydrates. There are other people who excrete 10 per cent, others who excrete more or less of the carbohydrates given above the tolerance limit. A part of this sugar which is not excreted is assimilated. The author concludes that in these cases it is better not to be too strict with the diet.—J. K.

(PANCREAS) Investigative and scientific phases of the diabetic question. Allen (F. M.), New York M. J. (N. Y.), 1919, **103,** 314-315.

The chief points of similarity between human and artificial canine diabetes are as follows: 1. The manner of onset is the same in man and dog. 2. Sugar ingestion alone is sometimes capable of producing diabetes where other carbohydrates are not. 3. Individual idiosyncrasies are observed in both instances. 4. Renal impermeability to sugar may result from the presence of an excess of sugar in the blood. 5. A "nervous" type of glycosuria can be brought on in dogs of a nervous nature. 6. Traumatic diabetes occasionally arises in predisposed animals. 7. Diabetes decipiens may occur in both man and dog.

The differences between human diabetes and the condition arising through pancreatectomy in the dog include the following: 1. A discrepancy exists in the dextrose and nitrogen ratio met with in the two conditions. 2. A great increase in protein metabolism takes place in the totally pancreatectomized dog. 3. Changes in the pancreas due to diabetes are observed in the dog.

If the cause of diabetes is pancreatic, it is manifested in diminished power on the part of the organism to utilize glucose. Diabetes is probably a broader condition than this. The diabetic organism does not assimilate normally. To account for this we are driven, owing to the lack of chemical evidence, to hypotheses such as that accumulation of reserve decreases tolerance, while deficient supply increases it, or that ingestion of any food decreases the assimilatory power for other foods, so that after a sufficient period of excessive carbohydrate intake, ketonuria appears more readily.

The keynote of treatment in diabetes is rest of a weakened function. As yet no method of actually strengthening this function has been discovered.—H. W.

(PANCREAS) Investigative and scientific phases of the diabetic question with their probable relation to practical problems of clinical medicine. Allen (F. M.), Boston M. & S. J., 1916, **174,** 319-320; Med. Rec. (N. Y.), 1916, **89,** 453; New York M. J., 1916, **103,** 314; J. Am. M. Assn. (Chgo.), 1916, **66,** 1525, 1532.

The rapid clinical changes possible in human diabetes seem to indicate functional rather than organic alterations in the pancreas. Back of human diabetes might be a disorder of the abdominal nerves, possibly disturbing not only the function of the pancreas, but to some extent that of other organs. The

kidneys are generally anatomically normal, although functional changes are frequent.—H. W.

(PANCREAS) Mild diabetes in children. Riesman (D.), Am. J. M. Sci. (Phila.), 1916, **151,** 40-44.

Riesman briefly reports four cases and concludes:

"1. There exists a mild type of diabetes in childhood and adolescence. 2. The disease is peculiar in its tendency to occur in several members of the same family. 3. The glycosuria is usually moderate, although nervous excitement and other disturbing factors may augment it. 4. Other diabetic symptoms are often slight and may be wanting. 5. The disease is not progressive and may remain stationary, or end in apparent recovery. 6. In its general features, it corresponds to the so-called renal diabetes."—H. L.

(PANCREAS) Morphine hyperglycemia in dogs with experimental pancreas deficiency. Auer (J.) and Kleiner (I. S.), J. Exp. Med., 1919, **29,** 49.

In previously reported experiments Auer and Kleiner found that after largely abolishing the function of the living pancreas in dogs, without resecting the gland, there was usually no marked hyperglycemia or glycosuria. In rare instances, however, these conditions did occur, and this occasional hyperglycemia was looked upon as a sign of weakness in the carbohydrate metabolism. They put to experimental test the conception that any factor causing hyperglycemia would probably call forth a greater response in animals with a pancreatic deficiency than in normal animals. They found that the subcutaneous injection of 1 to 2 mg. of morphine sulphate per kilo. in dogs with a pancreatic deficiency, whose sugar tolerance was still good, produces a rise in the glycemia about four times greater than the same amount of morphine calls forth in normal dogs. Inasmuch as these dogs were in a pre-diabetic state, the inference seemed warranted that the morphine test may be of value in detecting weakened carbohydrate metabolism in the human subject. The experimental facts described in the paper are believed by the authors to give additional corroboration to the view that the response of a normal and of a pathologically altered organism to the same drug in the same dosage may be quantitatively very different.—J. P. S.

(PANCREAS DIABETES) Ration certificates and statistics regarding diabetes (Nahrungsmittelatteste und Statistik). Kohn (H.), Berliner klin. Wchnschr., 1916, **53,** 1283.

The author points out that statistics as to the frequency of diabetes, based upon the number of medical certificates asking a repletion of the daily ration because of diabetes, are unreliable.—J. K.

(PANCREAS) Remarks on the Allen treatment of diabetes. Nesbitt(G. E.), Dublin J. M. Sc., 1916, **142,** 379-385.

Reviews the Allen treatment and reports its successful application in one case.—H. L.

(PANCREAS) Results obtained in the treatment of diabetes. Joslin (E. P.), Boston M. & S. J., 1916, **175,** 147-148.

Reports a decrease in mortality of 20 per cent over the previous year. This decrease is attributed to better methods of treatment. In the author's series of cases 66 per cent of the fatalities occurred because of coma. Eighty-seven per cent who succumbed during the first year of the disease died of coma; and 100 per cent of fatal cases among children resulted from the same cause. Therefore, if the mortality of diabetes is to be reduced, more attention should be paid to the avoidance of coma, and careful attention to the patient during the first year following the detection of the disease.—H. W.

(PANCREAS) The age at which trypsinogen appears in the foetal pancreas. Sampson (J. J.), J. Biol. Chem. (N. Y.), 1919, **38,** 345-355.

Trypsinogen when measured by refractometric methods, appears in pig embryos at approximately the 50-53 day of intrauterine life (length 65-72 mm.) The dendritic duct system is substituted for the primitive anastomotic tubules at the time of appearance of trypsinogen, and the point is made that special glandular functions are apparently coincident with the production of intracellular zymogen granules.—V. K. L.

(PANCREAS) The Allen diet for diabetes—with report of cases. MacNair (R. H.), South. Clinic (Richmond), 1916, **39,** 43-49.

The author eulogizes Doctor Frederick Allen of the Rockefeller Institute for his epoch-making advance in the treatment of diabetes; he briefly describes a few successful cases, calling especial attention to the use of spinach.—H. L.

(PANCREAS) The Allen treatment in diabetes mellitus. A report of five cases. Paley (S. H.), New York M. J. (N. Y.), 1916, **103,** 159-161.

A patient with sugar as high as 7 per cent may become sugar free within three days when starved and given only whiskey. Beginning with small quantities of carbohydrate in the form of non-starchy vegetables in gradually increasing amounts and later adding protein and fat, a tolerance can be established for the three foodstuffs sufficient to maintain the metabolism of the patient and yet keep him free from glycosuria. Apparently an acute infection or chronic disease is no hindrance to this form of treatment.—H. W.

(PANCREAS) The Allen treatment in diabetic gangrene. (Letter to the Editor) Baldwin (J. F.), Am. J. Surg. (N. Y.), 1916, **30,** 65.

Very brief report of amputation of leg for diabetic gangrene after preparatory Allen treatment, followed by diabetic coma and death two days after operation.—H. L.

(PANCREAS) The classification of diabetes mellitus. Ringer (A. I.), Penn. M. J. (Athens), 1916, **19,** 280-283.

A brief address emphasizing the importance of studying diabetes quantitatively instead of qualitatively.—H. L.

(PANCREAS) The diastatic activity of the blood in diabetes. Meyers (V. C.) and Killian (J. A.), Am. J. Physiol. (Balt.), 1917, **42,** 582-583.

The blood was found to have an increased activity in nephritis and diabetes, and the suggestion is made that this may be the important factor in the production of hyperglycemia in these conditions.—L. G. K.

(PANCREAS) The dietetic management of diabetes mellitus. Ruschhaupt (L. F.), New York M. J. (N. Y.), 1916, **103,** 1032-1033.

Dietetics in diabetes mellitus is rational only when it is based upon the caloric calculation of the diet.—H. W.

(PANCREAS) The recognition of pancreatic insufficiency, with special reference to the Loewi test. Decker (H. R.), Boston M. & S. J., 1917, **176,** 867-870.

Of 500 cases upon whom Lowei's test was performed, 18 gave positive reactions and only two of these were known to have pancreatic lesions. Hence, Loewi's test is not pathognomonic of pancreatic disease. It is further pointed out that

no tests at present are pathognomonic of pancreatic disease, or even meet the requirements of reasonable simplicity and reliability.—H. W.

(PANCREAS) The relations between glycogen and glucose in the liver cell and its significance in pancreatic diabetes (Die Wechselbeziehung zwischen Glykogen and Traubenzucker in der Leberzelle und ihre Bedeutung fur die Lehre vom Pankreasdiabetes). Lesser (E. J.), Ergebn. inn. Med. u. Kinderheilk. (Berlin), 1919, **16,** 279.

No news. The author considers pancreatic diabetes as caused by a change in the liver. As Claude Bernard has already pointed out, in the liver diastase and glycogen are separated from each other. In pancreatic diabetes this separation ceases; according to Lesser diastase and glycogen come into contact and abnormal hydrolysis results. This continues until the liver is free from glycogen.—J. K.

(PANCREAS) The role of fat in diabetes. Allen (F. M.), New York M. J. (N. Y.), 1916, **104,** 1005-1007.

Lipemia is almost a constant finding in human diabetes. The same condition is found also in partially depancreatized dogs. The fat may be present in the plasma of severe cases in either man or dog in amounts up to 15 per cent or over. In experimental dogs the lipemia varies in degree largely with the digestive power of the animals, hence can be controlled largely by feeding. Animals suffering from diabetes if kept upon a full diet develop true acidosis and diabetic coma ensues which is quite similar to that in man. In both man and experimental animals if the diabetes has gone too far the acidosis may be checked by the introduction of a fasting period, but if the diet is restored, the downward progress will continue. In severe cases fasting may at first increase the acidosis, but if the fasting is repeated with periods of return to a properly adjusted diet, it is usually possible to produce an immunity to the fasting acidosis and an ultimate recovery of very marked degree. Alterations in the reaction of the blood can not be considered the cause of death in acidosis of diabetic origin, for the blood may be kept normal in reaction and yet the man or animal may die in diabetic coma and typical acidosis.

—H. W.

(PANCREAS) The saliva in diabetics. Boston (L. N.) and Kohn (L. W.), New York M. J., 1917, **105,** 497-502.

In diabetes the diastatic activity of the saliva varies within wide limits. In some cases the enzymic power was slightly

higher than in normal cases. No definite relationship could be established between the diastatic energy of the saliva and the quantity of sugar in the urine. The saliva is more often acid than neutral or alkaline. Normal specimens of saliva have about the same degree of acidity, ranging from .0146 per cent to .0219 per cent. Excepting one case which was alkaline in reaction, all the others (12 cases) exhibited acidities ranging from .00365 per cent up to .07665 per cent. Therefore, quite a number showed acidities higher than .03 per cent when diastatic activity is supposed to be altered, and yet the diastatic activity sustained itself quite well.—H. W.

(PANCREAS) The treatment of diabetes mellitus by alimentary rest. Leyton (O.), Practitioner (Lond.), 1916, **97**, 24-43; 401-413.

An eminently sane presentation of the Allen treatment for diabetes, with Joslin's dietetic charts, and formulas of Lewis and Benedict's method of estimating sugar in the blood. The article includes instructions to nurses and details of the diets employed, and a concise tabulated record of forty-four treated cases. Of these, thirty were discharged sugar free; four cases of diabetes complicated by tuberculosis died and Leyton advises against the Allen treatment in these patients, feeling that the return for the sacrifice of food is small. In all other cases he strongly endorses a fair trial of the starvation treatment.—H. L.

(PANCREAS) The treatment of diabetes mellitus by prolonged fasting. Cammidge (P. J.), Practitioner (Lond.), 1916, **97**, 414-429.

This paper contains some convenient diet lists arranged in "average servings" of the various foods to be taken at table. The foods are classified in groups according to the approximate quantity of carbohydrate, protein and fat. The author warns against being misled by the absence of sugar in the urine, when there may still be hyperglucemia, which he considers more important.

Cammidge differs with Allen in his method of arriving at protein tolerance. He does not agree that protein can be raised higher and higher so long as the urine remains sugar free. He believes that diabetic diets should be arranged to maintain nitrogenous equilibrium. He considers that better and more permanent results will be obtained from the fasting treatment if the nitrogen loss in the urine is taken as the chief guide in fixing the amount of nitrogenous food than if attention is confined solely to the appearance of sugar in the urine.

It is concluded that the Allen treatment controls the acidosis in most typical cases of diabetes more quickly than any plan previously described, but that it will probably result in a cure only in some cases, while only a temporary respite will be secured in others, the ultimate cause progressing or recurring unchecked. And finally, Cammidge believes that many chronic cases in elderly people will do as well without as with prolonged fasting if the protein and carbohydrate content of their diet is carefully adjusted to their metabolic capacity, and with much less discomfort to themselves.—H. L.

(PANCREAS) The treatment of diabetes mellitus with special reference to Allen's method. Stengel (A.), Tonas (L.) and Austin (J. H.), Penn. M. J. (Athens), 1916, **19**, 283-287.

The authors briefly refer to the history of advances in diabetic treatment, mentioning the contributions of Rolle in 1796, Prout in 1820, Cantam in 1880, Rubner in 1901, Stadelman in 1883, Wilben in 1904, Benedict and Torok in 1906, von Noorden in 1901, and finally Allen in 1914. Following a description of Allen's method of treatment, the authors refer to their own modifications. They conclude that Allen's method is the most successful in severe cases, but that the majority of diabetics do not require the preliminary fast.—H. L.

(PANCREAS) The value of starvation in the treatment of diabetes mellitus. Poulton (E. P.), Guy's Hosp. Gaz. (Lond.), 1916, **30**, 222-227; 238-244.

Poulton accepts Allen's viewpoint that the pancreas produces an internal secretion which passes in the blood stream to the tissues and there acts as an amboceptor, linking a food molecule, such as dextrose, to the biogen molecule in the cell. In diabetes there is a deficiency in the amboceptor, hence dextrose molecules cannot be anchored to the cell and utilized. The author calls attention to the experimental production of glycosuria by extirpation of the panceras by von Mering and Minkowski in the latter part of the nineteenth century and the elaboration of this relationship by the recent experiments of Allen, who demonstrated that the severity of the diabetes was directly proportional to the amount of pancreas removed. Furthermore, the external secretion of the pancreas has no influence on diabetes; the lack of internal secretion is responsible; the histological change occurring in the islands of Langerhans are probably the result of the diabetes process rather than associated with the cause of diabetes. The author then reviews Allen's starvation treatment, reports some cases and

discusses Joslin's new policy of avoiding alkalies in acidosis. He closes with a favorable opinion of Allen's exercise treatment.—H. L.

(PANCREAS) Treatment of diabetes. Fremont-Smith (F.), Boston M. & S. J., 1916, **175**, 476-479.

Nothing new.—H. W.

(PANCREAS) Speculation regarding the pancreas and metabolism in diabetes. Greeley (H. P.), Boston M. & S. J., 1916, **175**, 753-754.

The remarkable success of the Allen fasting treatment of diabetes, the author believes, is largely due to the element of relatively absolute rest—rest being the raison d'être for almost all medical treatment of chronic metabolic diseases.—H. W.

(PANCREAS) On the internal secretion of the pancreas (Sur la sécrétion interne du pancréas). Kumagai (T.) and Osato (S.), C. R. Soc. Biol. (Paris), 1919, **82**, 425-427.

The authors found that the amylolytic activity of the lymph of the thoracic duct was increased to a much greater extent than that of the blood after an injection of pilocarpine. Other investigators have shown that the increase does not occur after extirpation of the pancreas. Accordingly, the authors conclude that amylase is an internal secretion of the pancreas and that it reaches the blood by way of the thoracic duct. Lymph from the thoracic duct of animals treated with pilocarpine when injected into dogs with pancreatic diabetes causes no effect if the whole of the pancreas has been extirpated, but decreases the glycosuria if the pancreas has been only partially removed.—L. G. K.

(PANCREAS ADRENIN) The effect of painting the pancreas with adrenalin upon hyperglycemia and glycosuria. Kleiner (I. S.) and Meltzer (S. J.), J. Exp. Med., 1919, **29**, 647.

A difference exists in the effects on blood pressure and sugar production, depending upon the mode of administration of adrenalin. With regard to sugar production a subcutaneous injection has a definitely greater effect than an intravenous injection; with regard to blood pressure, however, the opposite is true. Herter had claimed that intraperitoneal injection of adrenalin gave a higher degree of glycosuria than subcutaneous or intravenous injection, and that the difference was due to the direct effect of the drug upon the pancreas. Kleiner

and Meltzer tested this hypothesis and found that painting the pancreas so isolated that no adrenalin could reach the peritoneum gave a glycosuria about one-third, and a rise in blood pressure about two-thirds, that obtained by painting the un-isolated pancreas. Two facts were deduced: (1) that the painting of the isolated pancreas produces only mild glycosuria and hyperglycemia, and (2) that the greater production of sugar observed after painting the un-isolated pancreas cannot be of pancreatic origin. The authors are unwilling, however, to state whether the production of sugar is due to the escape of the adrenalin to some definite organ covered by the peritoneum (coeliac ganglion or adrenals), or whether the peritoneum as a whole is responsible.—J. P. S.

(PANCREAS HYPOPHYSIS) The relation between diabetes mellitus and diabetes insipidus (Zur Frage des Zusammenhangs des Diabetes mellitus und Diabetes insipidus). Lewin (C.), Med. Klin. (Berlin), 1919, **15,** 133.

It is still an open question whether diabetes mellitus may change into diabetes insipidus or diabetes insipidus into diabetes mellitus. The author discusses the literature and describes two cases.

In the first case a woman of 32 with an enormous polyuria and polydipsia contracted diabetes mellitus and lost her polyuria. In the second case a man of 46 had diabetes mellitus. The quantity of excreted sugar, however, did not depend upon the quantity of ingested carbohydrates. After some time sugar disappeared from the urine and blood sugar became normal, but the patient developed polyuria and polydipsia. In this case the author examined carefully the concentration power of the kidneys. The concentration of the urine rose when little water was given, hence the concentration power was normal. This case we cannot designate diabetes insipidus, but we must call it simply polyuria. So it is with all cases in the literature. Most of them are not carefully examined, or when they are, prove to be neither diabetes mellitus nor diabetes insipidus. The author concludes that a case has never been described in which the one diabetes actually changed into the other. He believes that there is no relation between the two diseases.

—J. K.

(PARATHYROID?) A case of tetany in an adult. Kjolstad (S.), Norsk Mag. f. Laegevid (Christiania), 1917, **78,** 307-310.

A case report. A man of 22 was suddenly taken ill after exposure to cold weather. He developed general convulsions, without any apparent cause. He gradually grew worse and

the case proved fatal in two days. Previously he had had four similar attacks with convulsions, at intervals of a year, each time after exposure to cold weather. Autopsy was not performed. Discussing the case, the author holds it to be one of "idiopathic" tetany.—K. M.

(PARATHYROID) A case of tetany in an adult and some critical observations on the cause of tetany (Een geval van tetanie bij een volwassene en eenige kritische opmerkingen betreffende de pathogenese der tetanie). Bolten (G. C.), Nederl. Tijdschr. v. Geneesk. (Haarlem), 1917, **61** (i) 218-236.

Description of a case of tetany in a boy of 17. The boy had all symptoms of latent tetany but no real spasms, except once after a few days constipation. When the action of the bowels was again normal he had no more spasms. The boy was very infantile. Most probably this patient was suffering from a polyglandular insufficiency. Bolten reverts again in this article to the etiology of tetany, as previously set forth in Geneeskundige Bladen, **19**, 301. (Abstracted in Endocrin., **1**, 523.)—J. K.

(PARATHYROID) An observation demonstrating the influence of the parathyroids on tetany strumipriva (Een waarneming die den invloed der bijschildkliertjes op strumiprive tetanie aanvallen op duidelijke wijze toelicht). Winkler (C.), Nederl. Tijdschr. voor Geneesk. (Haarlem), 1917, **61** (i), 768-770.

Demonstration of Stenver's patient (see Endocrin, **1**, 399) before a congress of Dutch physiologists.—J. K.

(PARATHYROID) Influence of parathyroid organotherapy on the calcification of bone (Influence de l'opothérapie parathyroidienne sur la calcification des os). Boez (L.), C. R. Soc. Biol. (Paris), 1919, **82**, 447-448.

The administration of dried parathyroid glands along with calcium phosphate to growing rabbits was found to increase the rate of calcification in bone, while calcium phosphate alone did not appear to influence it.—L. G. K.

(PARATHYROID) Tetania parathyreopriva, The guanidin content of muscle in—. Henderson (Pearl S.), J. Physiol. (Lond.), 1918, **52**, 1-5.

The investigations of Noël Paton and his collaborators have shown a correlation between the symptoms of tetania

parathyreopriva and the action of guanidin on the motor cells of the cord. There is also an increase of guanidin in the blood and urine in tetania parathyreopriva. (See Endocrin., 1917, **1**, 476.) This increase in guanidin in blood and urine might be due to an increased liberation from the muscle, or to an increased formation of guanidin in the muscle. Henderson finds there is a "fall in the total and in the free guanidin of muscle, and a rise of the creatin, both absolutely and in relation to the total nitrogen. The fall in the total guanidin is far in excess of the nitrogen in free guanidin and in creatin, and must indicate either a liberation of guanidin from the muscle, or a failure in the power of the muscle to take up guanadin formed elsewhere," either of which may account for the increase in blood and urine.—T. C. B.

(PARATHYROID) Tetania parathyreopriva. Laméris (J.), Nederl. Tijdschr. v. Geneesk. (Haarlem), 1917, **61** (I), 856-860.

A description of the patient of Stenvers (see Endocrin. **1**, 399) by the surgeon who performed the operation. Since the description by Stenvers a fourth parathyroid has been transplanted. The effect has not been as was thought at first. After some months all symptoms of tetany had reappeared.—J. K.

(PARATHYROID) Tetany and the functions of the parathyroids. Paton (D. N.) and Findlay (L.), Brit. M. J. (Lond.), 1917 **(i)**, 575-577.

Published elsewhere. See Endocrin. 1917, **1**, 476-80. —L. G. K.

(PARATHYROID) Tetany and the functions of the parathyroids. Forsyth (D.), Brit. M. J. (Lond.), 1917 **(i)**, 632.

Forsyth criticizes the work of Paton and his coworkers. (See Endocrin., 1917, **1**, 476-80.) He contends that, on the whole, the evidence does not support the assumption of Paton "that the nervous symptoms (of tetany) are due to the removal of the parathyroids."—L. G. K.

(PARATHYROIDS) The role of parathyroids and calcium metabolism in tetany (Over de beteekenis van de bijschildkliertjes en de kalkstofwisseling bij tetanie). Arntzenias (A. K. W.), Inaugural Dissertation, Leiden, 1919.

The author examined four patients having tetany. Two of them were suffering from severe diarrhoea. The two others

had post-operative tetany. Three of these patients had a negative calcium balance. These were much benefitted by the administration of calcium (lactate of calcium or chloride of calcium, 4 grams daily). The symptoms of tetany diminished. In only one patient was the calcium metabolism itself improved by this treatment. The fourth patient had symptoms of latent tetany, only, without abnormal calcium metabolism. She, too, was much benefitted by the administration of calcium.

The author tried to treat his patients with fresh or dried parathyroids (of cow or sheep). His results were absolutely negative. Even in enormous doses (he once gave a patient 100 parathyroids at once) no influence on the disease was seen. The author concludes that the cause of tetany is a hypofunction of the parathyroids. This causes a change in calcium metabolism. This change in metabolism is responsible for the tetany. We can only treat the symptom, negative calcium balance, but we cannot treat by remedies the true cause, the parathyroid insufficiency.

There are probably two factors operative in the association of diarrhoea and tetany. Patients with chronic diarrhoea show a disturbed absorption of fat. The stools contain more fatty acids and more calcium soaps than normal. The excretion of calcium is increased. Also patients with chronic diarrhoea not infrequently suffer from pluriglandular insufficiency. The author found in his patients brown pigmentation and disturbed function of the pancreas. That the internal secretion of the pancreas may be disturbed in chronic diarrhoea is well known. The brown pigmentation may be the result of adrenal insufficiency (blood sugar was normal). Perhaps parathyroid insufficiency may be one of the symptoms of the polyglandular disease.—J. K.

(PITUITARY) A case of pituitary body disease and the results of glandular administration. de Schweinitz (G. E.) and How (H. W.), Arch. Opth. (N. Y.), 1917, **46**, 139-146.

The writers report a case of gradual onset of blindness in a woman of 38. She had suffered for years with temporal neuralgia and numbness of her fingers. Her mother had arthritis deformans, and her father died of angina pectoris. The skiagram showed an enlarged pituitary fossa, and thinning of the posterior clinoid processes. What the writers wish to point out is that in this and two additional cases quoted they administered thyroid extract in addition to pituitary, together with inunctions of mercury. The patients showed a steady and gradual improvement in their vision. There was no history of lues in any of the cases.—J. H. L.

PLURIGLANDULAR INSUFFICIENCY, A case of—. Christoffersen (N. R.), Nord. med. Arkiv. (Stockholm), 1918, **2**, 50. (Article written in French.)

A woman, aged 25 years, was suffering from amenorrhea, asthma, palpitations and pigmentation of the skin; the face was somewhat puffy and dropsical. Blood pressure was low. Blood-sugar showed an enormous increase upon feeding with glucose, but there resulted no glycosuria. The patient died in half a year. The autopsy showed atrophy of the thyroid, adrenals and ovaries. No sign of tuberculosis was detected.
—K. H. K.

POLYGLANDULAR INSUFFICIENCY, A case of—. Fog (J.), Ugeskrift for Laeger (Copenhagen), 1917, **79**, 1046-1052.

A woman, aged 18 years, showed from early childhood signs of slow development. She showed now dwarfism (length, 144 cm.), retarded junction of the epiphyses, hypotrichia, slight pigmentation, latent tetany, slight goitre, aplasia of the genital organs, infantile face and intellect, disease of the heart, and a strange disturbance of the carbohydrate metabolism (hyperglycemia without glycosuria). These symptoms are probably related to disease of all the endocrine glands. Of special interest is the fact that the disease seems to go back to early childhood and the hyperglycemia is without glycosuria; this last thing makes an interesting contrast to a similar case of Krabbe that showed glycosuria without hyperglycemia.—K. H. K.

POLYGLANDULAR INSUFFICIENCY, Thyreogenic obesity and diabetes. Heiberg (K. A.), Bibliothek for Laeger (Copenhagen), 1916, **108**, 339-346.

A woman aged 59 years had syphilis forty years ago. Thirty-five years before she became suddenly very fat. She showed signs of diabetes, the sugar reaction of the urine being very marked. The condition was somewhat improved by thyreoidine treatment.—K. H. K.

PUBERTAS PRAECOX. Krabbe (K. H.). Hospitalstidende (Copenhagen), 1917, **60**, 1165-1175; Ugeskr. f. Laeger (Copenhagen), 1917, **79**, 1427.

A boy, aged 1 year, showed a slight microcephaly, hypertrophy of the lower face, very marked development of the penis, scrotum and testicles, and short, dark pubic crines. Fur-

ther there were signs of latent tetany, spastic paresis of the lower limbs and imbecility. Certain "cramps" which the child showed seems to have been due to onanism. There was no sign of brain-tumor. The author discusses the probable etiology and suggests that the precocious development of the sexual glands in this case perhaps is related to an adrenal tumor, coincident with aplastic development of the brain.

—K. H. K.

SCLERODERMA in an infant (Sklerodermie in Kindesalter). Kraus (A.), Münch. med. Wchnschr., 1919, **66**, 429.

Scleroderma in a child of 11 months. Though he looked for it especially, the author could not detect an abnormal function of any of the endocrine organs.—J. K.

SCLERODERMA in infants (Uber Sklerodermie beim Säugling). Meyer (L. F.), Deutsche med. Wchnschr. (Berlin), 1919, **45**, 850.

Scleroderma is extremely rare in infants. In literature there are only ten cases known. The author reports two other cases. In adults there are three stages: First, oedema; second, induration; third, atrophy. In infants only induration is seen. It is healed without any therapy. The cause is probably a polyglandular dysfunction.—J. K.

(SECRETIN) A comparison of the influence of secretin and antineuritic vitamine on pancreatic secretion and bile flow. Voegtlin (C.) and Myers (C. N.), Am. J. Physiol. (Balt.), 1919, **49**, 124.

Alcoholic extracts of yeast and extracts of the mucosa of the duodenum prepared in the same manner and submitted to Funk's method for the preparation of the vitamine fraction both cause marked increase in pancreatic secretion and bile flow when injected intravenously, and both relieve the paralytic symptoms of polyneuritic pigeons. Other experiments have shown that liver, heart muscle and milk, previously shown to contain the antineuritic vitamine, also contain a substance which stimulates pancreatic secretion and increases the flow of bile. It is concluded that secretin and the antineuritic vitamine are very closely related if not identical.—L. G. K.

SECRETIN and the change in the corpuscle content of the blood during digestion. Downs (A. W.) and Eddy (N. B.), J. Florida M. Assn., 1918, **5**, 101-106.

The administration of secretin subcutaneously even in small doses is promptly followed by a considerable increase in the number of both red and white corpuscles in the circulating blood. This increase is only transient after a single dose, but repeated doses, daily or three times a week, cause both the red and the white counts to remain elevated. The effect on the white corpuscles appears earlier, is more marked and persists longer than the effect on the red corpuscles. These changes in the corpuscle content of the circulating blood are due to a direct stimulating action of secretin on the blood-forming organs, especially the bone marrow. During digestion the number of both erythrocytes and leucocytes in circulation is increased. This change is comparable with the result of the experimental administration of secretin. In both cases the bone marrow is stimulated and the differential leucocyte counts are similarly modified. It is believed that secretin is the cause of the increase in the blood corpuscles observed during digestion.—Author's Abst., N. B. E.

(SECRETIN PANCREAS) The place of formation of secretin and its importance for the functioning of the pancreas (Ueber Bildungsort und Schicksal des Sekretins und ihre Bedeutung für das Pancreas). Djenab (K.), Berl. klin. Wchnschr., 1917, **54**, 624; Münch. med. Wchnschr., 1917, **64**, 719.

It is possible with hydrochloric acid to extract secretin from the mucous membrane of the duodenum. In the literature much has been written on prosecretin, but its existence has never been proved. Secretin injected into a vein lowers the blood pressure and increases the secretion of the pancreas. If, however, it is injected into the vena porta it has no action. The liver seems to inactivate it.—J. K.

(SEX) Effect of grain rations on growth of chicks. Buckner, Nollan, Wilkins and Kastle, J. Agric. Research, 1919, **16**, 305.

The results of feeding experiments with proteins of rice, oats, barley, hominy, and glutin flour indicate a retarding action on the development of the external sexual characteristics and their functions, which accompanies the arrested development of the chicks.—V. K. L.

SEXUAL characters in mammals, experimentally studied. Sand (K.), Dissertation, Copenhagen, 1918, pp. 256.

The author sets out to study experimentally the influence of the gonads on the secondary sex characteristics produced by the sex hormone. Following Steinach, he performed extirpa-

tions and transplantations of ovaries and testicles in guinea pigs, rabbits and rats. The experiments affirmed and extended the results of Steinach. All the observations are described in much more detail than were Steinach's. For these the original article should be consulted. The experiments showed that the male sexual hormones are produced in the Leydig cells, but the female, probably, in all the different elements of the ovaries. Especially new are experiments on artificial hermaphrodites. The author succeeded, by simultaneous implantation of ovaries and testes in infantile castrated animals, in producing artificial ovo-testes with full spermatogenesis and production of ovarian follicles. The secondary sex characteristics in these animals were partially male, partially female. The author considers pseudohermaphroditism and also homosexualism in a new light, regarding the endocrine, not the exocrine, sexual gland as the fundamental sex structure, and he suggests that perhaps homosexualism might be ascribed to the production of female hormones from the Leydig cells in the testicles.—K. H. K.

(SPLEEN THYROID) Influence of the spleen on the respiratory quotient (Einfluss der Milz auf den respiratorischen Stoffwechsel). Danoff (N.), Biochem. Ztschr. (Berlin), 1919, **93**, 44-65.

Experiments were made on rats. After removal of the spleen metabolism was enormously increased. The respiratory quotient remained unaltered, but the quantity of excreted CO_2 and of used oxygen (examined by the technique of Haldane) was largely increased. The spleen inhibits metabolism. It is the antagonist of the thyroid.—J. K.

(TESTIS) Male climacteric (Orqui-Endocrino-Pausia). Allende Ignacio, Libro de Oro del Profesor Bazterrica, Buenos Aires, 1918.

Considerations relative to the production of neurasthenic symptoms and of sexual aberrations in men toward the end of the period of sexual activity. The author compares this to the menopause in women.—B. A. H.

(TETANY) "Calciprivic" constitution (Calciprive constitutie). Stheeman (H. A.), Nederl. Tijdschr. v. Geneesk. (Haarlem), 1919, **63**, (ii), 291.

If a young child has an increased irritability of the nerve or muscle (symptoms of Erb and Chvostek) we are inclined to call this tetany. If there are no signs of tetany or spasmo-

philia we speak of latent tetany. This is not permissible. The symptoms of Erb and Chvostek are very often seen, but tetany is much less frequently observed. In other children, at the age when tetany is no more observed, the symptoms of Erb and Chvostek are often positive. The author thinks that tetany is one of the many disturbances in which these signs are present. They are also positive in all kinds of chronic disturbances as they are frequently seen in children. Also in neurasthenia, psychasthenia, vagotonia and lability of the sympathetic these symptoms may be observed. The author found that all patients with the sympoms of Erb and Chvostek have a diminished content of calcium in blood and tissues. He calls these two symptoms together the "calcioprive stigma." Among the patients with this stigma the parathyreoprivic tetany is an important group, but there certainly exist other diseases which have no relation to tetany, but which show the same stigma. In these cases we can not properly speak of latent tetany.

—J. K.

(TETANY) The blood calcium content in normal children and in tetany (Het bloedkalkgehalte bij normale kinderen en bij kinderen met tetanie). de Vries Robles (I. B.), Nederl. Tijdschr. v. Geneesk. (Haarlem), 1919, **63** (I), 1663.

The author determined by Wright's method the content of calcium in the blood of normal children and of children with tetany. He found no difference. He cannot confirm the results of other Dutch and German authors who found the amount of calcium in tetany diminished.—J. K.

(TETANY) The vegetative nervous system and nutritive disturbances in infantile tetany (Ueber die Beteiligung des vegetativen Nervensystems und über trophische Störungen bei der infantilen Tetanie). Aschenheim (E.), Münch. med. Wchnschr., 1919, **66**, 712.

All organs supplied by the vegetative nervous system may be affected in tetany. The author describes the changes that may be observed in the heart, the blood vessels, the lungs (bronchotetany), the intestines and the eyes. Nutritive disturbances are rather rare, but may be observed in the eye (cataract), the nails, the teeth and the skin.—J. K.

The VEGETATIVE NERVOUS SYSTEM. A discussion of its relation to the internist and surgeon. Orbison (T. J.), New York M. J., 1917, **106**, 584-589.

A general discussion of the relation of the autonomic nervous system to functional and organic disturbances.—H. W.

(THYMUS) Thymic dwarfism. Krabbe (K. H). Ugeskrift for Laeger (Copenhagen), 1917, **79,** 1329-1337.

A girl, aged 16 years, had increased in growth very slowly since an age of 1½ years. At 16 years of age she had a height of 111 cm. The lower limbs were short; there was some rachitic deformity of the legs; some of the epiphyses had grown together too early. The hair on the head was very short and sparse. Some pigmentation of the skin was noted. The face was somewhat pre-senile. The genital organs were aplastic. The intellect was good. The dwarfism probably developed in connection with rachitism because achondroplasia and primordial, myxedematous and pituitary dwarfism can be excluded. On the other hand, the patient shows signs of endocrine disturbance. Rachitic dwarfism is rather rare and it must be considered whether this case could belong to a special form of rachitism. Klose and Vogt's experiments on animals have shown that extirpation of the thymus may produce a combination of dwarfism and rachitism. It must therefore be considered if such cases in human beings which show this combination could be related to a thymic disturbance; of course anatomo-pathological examinations are necessary to prove it.—Author's abstract.

(THYMUS) Status lymphaticus from the clinical standpoint. Cameron (H. C.), Brit. M. J. (Lond.), 1917, (i), 753-755.

Not of endocrine interest.—L. G. K.

(THYMUS) Status thymo-lymphaticus in infants (—bei Neugebornen). Schirmer (A.), Beitr. z. pathol. Anat. (Jena.), 1919, **65,** 270.

In infants a status thymicus may be observed in which hyperplasia of the follicles of the spleen is the chief symptom. Very often the thyroid is enlarged. This abnormality is hereditary.—J. K.

(THYMUS) The clinical symptoms and treatment of hypertrophy of the thymus gland. Cumston (C. G.), Edinburgh M. J., 1917, N. S. **19,** 20-23; Med. Press. & Circ. (Lond.), 1917, **104,** 140-142.

Cumston notes that the functional symptoms of enlarged thymus are those of respiratory disturbances: permanent dyspnea coupled with inspiratory effort, resulting sometimes in a forward projection of the sternum; decrease in transverse diameter of the thorax and spreading of its lower circumfer-

ence which may produce a characteristic deformity. Frequent paroxysms of suffocation, mostly nocturnal, accompanied by cyanosis and relieved by the sitting position suggest enlarged thymus. The author believes that one may differentiate between laryngeal stridor and thymic stridor by the presence of serious paroxysms of suffocation in the latter. He mentions cyanosis, distention of the superficial veins of the neck, a forward vaulting of the manubrium of the sternum, an area of dullness at either side of sternum beneath the clavicles, and the retrosternal pressure manoeuvre as helpful diagnostic signs. He briefly considers surgical treatment, exothymopexy, resection of the sternal manubrium and thymectomy. He advises as the best, partial intracapsular enucleation. He mentions radiography, but has not had sufficient experience with this method to render an opinion as to its value. In acute emergencies surgery is the only procedure possible. (Intubation and trachetomy rarely suffice, but where haste is not necessary, we believe X-rays should always be tried in the hope of accelerating thymic involution before resorting to surgery.)—H. L.

(THYMUS) The Roentgen ray treatment of epileptic subjects of status lymphaticus. Symmers (D.), J. Am. M. Assn. (Chgo.), 1917, **69**, 2204.

Based upon the clinical fact that epileptic seizures often cease at puberty, i.e., at the period when the thymus gland undergoes involution, this writer points out that those epileptics that show the stigmata of status lymphaticus, should be subjected to Roentgen radiations. This form of therapy should be directed to the thymus, spleen and the intestines. It has the effect of limiting lymphoid tissue proliferation.

—J. H. L.

(THYMUS) Sudden death during tonsillectomy (Tonsillectomie en thymusdood). Burger (H.), Nederl. Tijdschr. v. Geneesk. (Haarlem), 1919, **63**, (I), 1951.

During the removal of the tonsils in a boy of 15 years under chloroform narcosis sudden death occurred. Post-mortem examination showed an enormous thymus and enlarged lymphatic glands. No changes in the adrenals were detected. Perhaps it would be of some use to give adrenaline in these cases.—J. K.

(THYMUS PARATHYROIDS) Fragilitas osium congenita. Bolten (G. C.), Nederl. Tijds. v. Geneesk. (Haarlem), 1919, **63** (ii), 284.

Description of three children of one family with enormous fragility of the bones and with blue sclerae. All three children had symptoms of latent tetany and showed nutritive troubles of hair, teeth and nails. The blue sclerae are also caused by trophic changes; they are much thinner than a normal sclera. The bones are poor in calcium. Most probably the disease is due to an insufficiency of the thymus. The author discusses his cases in connection with the experiments of Klose and Vogt on dogs. After thymectomy these animals showed also a fragility of the skeleton combined with symptoms of tetany. However, the disturbance in calcium metabolism makes it probable that the parathyroids play also an important part in the disease.—J. K.

(THYMUS THYROID) Rare forms of carcinoma (Zur Kenntnis seltener Krebsformen). Schmidtmann (H.), Virchow's Archiv. (Berlin), 1919, **226**, 100.

Anatomical description of some rare forms of cancer of the thymus and the thyroid glands.—J. K.

(THYROID) A case of dyscrasic menorrhagia arrested by the use of hemato-ethyroidine. (Un cas de menorragie dyscrasique arrêtée par l'hemato-éthyroidine.) Émile-Weil (P.), Bull. et mem. soc. Hôp. de Paris, 1919, **23**, 672-77.

A case is described of severe menorrhagia in a married woman thirty years of age, without children. She was markedly anemic and having menstrual discharge from twenty to twenty-five days in succession. Treatment with thyroid, suprarenal, hypophysis and mammary extract was unavailing. The administration of hemato-éthyroidine gave almost immediate relief and normal periods were soon established. When the treatment was discontinued the menorrhagia reappeared, but ceased finally with renewed treatment. This anti-thyroid medication is given in coffee after meals for a week, and then interrupted for a few days and recontinued. The treatment should be carried on for some time to ensure complete regulation.—F. S. H.

(THYROID) A case of familial angioneurotic oedema combined with tetany (Een geval van familiair angioneurotisch-oedeem gecombineerd met tetanie). Bolten (G. C.), Medisch. Weekblad (Amsterdam), 1919, **26**, 1.

Of twelve members of a family, seven showed now and then a transitory oedema of the face. One of these patients had symptoms of tetany, urticaria, fits of sneezing and vomit-

ing. There were symptoms of vagotonia. Bolten believes that these cases are caused by a hypotonia of the sympathic nervous system with a hypofunction of the thyroid gland.—J. K.

(THYROID) A case of sporadic cretinism (Ein Fall von sporadischem Kretinismus). Weygandt, Deutsche med. Wchnschr. (Berlin), 1917, **43,** 1624.

Description of a cretin who in Hamburg was well known to all the boys in the street. The skin was dry. The intelligence was very low. She knew only how to write her name. Autopsy showed atrophic brain (weight 965 gram.) and small colloid goitre.—J. K.

(THYROID) A case of sporadic hemophilia accompanying myxedema. Favorable action of thyroid therapy (Un cas d'hémophilie sporadique chez un myxoedémateux. Action favorable de l'opotherapie thyroïdienne). Benard (R.), Bull. et mem. soc. med. hôp. de Paris, 1919, **24,** 702-709.

Clinical picture of a case of myxedema presenting sporadic hemophilia. As the result of the administration of desiccated thyroid the coagulation time of the blood was reduced, and epistaxis arrested without return. The author found in the literature accounts of twenty-three other cases of thyroid insufficiency with hemorrhages in which therapeutic success was complete. It is suggested that the thyroid may influence coagulation through its relation to calcium metabolism.

—F. S. H.

(THYROID) Action of the thyroid body on glucose metabolism (Action du corps thyroide sur le métabolisme du glucose). Labbé (M.) and Vitry (G.), C. R. Soc. Biol. (Paris), 1919, **82,** 385-386.

The ability of rabbits to retain glucose in the body after its intravenous injection was found to be decreased by removal of the thyroid gland but unaffected by hypertrophy of the thyroid. These results were obtained by urinary analysis for sugar on the day of and the day following the injection of the glucose, the results from the abnormal animals being compared with those from normal rabbits.—L. G. K.

(THYROID) A new way to diagnose malignant goitre (Ein weitere diagnostisches Merkmal des malignen Struma). Oehler (J.), Zentralbl. f. Chir. (Leipzig), 1919, **46,** 536.

If in an X-ray photograph of a goitre the trachea is invis-

ible, the goitre is malignant. This may be explained by the infiltration of the trachea by the tumor.—J. K.

(THYROID) An experimental and clinical study of the isolated thyroid hormone. Janney (N. W.), Med. Rec. (N. Y.), 1917, **91,** 1161; Arch. Pediat. (N. Y.), 1917, **34,** 530-534.

Janney reports studies with Kendall's thyroid hormone. Normal individuals reacted with tachycardia and other toxic symptoms with very small amounts. The nitrogen balance began to decrease before clinical symptoms appeared and demonstrated that metabolism was profoundly affected by the hormone. Administration to a cretin resulted in decided clinical improvement. Much is to be expected from this preparation when its production attains commercial proportions. It is, however, difficult to isolate. Janney's investigations promise much for the more exact study of endocrine disorders.—H. L.

(THYROID) Anti-thyroidine treatment. Rahlff (A.), Ugeskrift for Laeger (Copenhagen), 1917, **79,** 566-570.

Contrary to Sonne (Ugeskrift for Laeger, 1914) who had found that anti-thyroidine had no effect on Graves' disease, the author suggests that it may have some effect; as proof he mentions that he has seen the Loewi's reaction disappear after the treatment.—K. H. K.

(THYROID) Atrophic myotonia (Atropische Myotonie). Fleischer (B.), Arch. f. Ophthalmol. (Berlin), 1919, **96,** 91.

A long article on atrophic myotonia and cataract. Of endocrine interest is the fact that the author always found degenerations in the thyroid.—J. K.

(THYROID) Blood changes in Graves' disease. Solling (H. A.), Nordisk medicinsk Arkiv (Stockholm), 1916, **49,** (I), 1-44.

In active cases of Graves' disease the white and red blood corpuscles are normal in number, but the percentage of lymphocytes is somewhat higher than normal. In absolutely cured Graves' disease the number of blood corpuscles is normal. For the diagnosis and prognosis the examination of blood has less significance than hitherto supposed; especially it is of no importance as an indication for thymectomy.

—K. H. K.

(THYROID) Carbohydrate metabolism in relation to the thyroid gland. III. The effect of thyroidectomy in rats on the

gaseous metabolism. Cramer (W.), and McCall (R.), Quart. J. Exp. Physiol. (Lond.), 1918, **12,** 81-95.

A continuation of earlier work with the idea of testing certain conclusions arrived at at that time. (See Endocrin. 1917, **1,** 362, 496.) In rats removal of the thyroids and parathyroids cause no severe disturbance of metabolism. There is at first a diminution of the total metabolism, but this is followed by a compensatory increase. A study of the R. Q. and of the urine shows that the power of the cells to oxidise carbohydrates is not impaired by removal of the thyroids, and the inference is drawn "that the condition of the carbohydrate metabolism in experimental hyperthyroidism is not due to a direct stimulating effect of the thyroid hormone on the oxidation of carbohydrates." The authors take the view that in hyperthyroidism there is a mobilization of the liver glycogen due to the action of the thyroid hormone on the adrenals, increasing the "load" of adrenalin in these glands, and this mobilization of liver glycogen is followed by increased oxidation of carbohydrate by the organism, and not by glycosuria. The absence of these alterations of the glycogenic function of the liver in thyroidectomized rats will account for the absence of marked changes in their metabolism.—T. C. B.

(THYROID) Carbohydrate metabolism in relation to the thyroid gland. IV. The effect of thyroid feeding on the gaseous metabolism of thyroidectomized rats. Cramer (W.) and McCall (R.), Quart. J. Exp. Physiol. (Lond.), 1919, **12,** 97.

Two stages of experimental hypothyroidism are distinguished; an early stage in which the metabolism falls, and a later stage in which the metabolism swings back toward the normal. If thyroid is fed in the early stage, the metabolism is brought back to that of a normal animal; if fed at a later stage, the metabolism is similar to that of a normal animal that has been fed thyroid. The early period corresponds to hypothyroidism in man, while in the later period there is an increased metabolism which suggests the operation of a compensatory mechanism. This compensatory mechanism may be due to accessory thyroids which hypertrophy, or it may be due to the vicarious functioning of other endocrine glands.

—T. C. B.

(THYROID) Cases of cretinism. Cameron (H. C.), Proc. Roy. Soc. Med. Sect. Dis. Child. (Lond.), 1918, **11,** 20-22.

In the experience of the author cases of cretinism always show a very marked delay in the development of the epiphyses.

He believes this to be the most constant evidence of thyroid insufficiency.—L. G. K.

(THYROID) Constitutional disturbance of toxic goitre as influenced by surgical therapy. Frazier (C. H.), Penn. M. J. (Athens), 1916, **21,** 510-514.

Frazier's experience indicates that toxic goitre is increasing, whereas simple goitre, so-called, is no more common than heretofore. He divides toxic goitre into four groups. The first is the toxic adolescent group between 16 and 19 years of age, which he considers the gravest form. The second comprises the group between 30 and 40 which have had adenoma or simple hyperplasia which become toxic. These respond most favorably to operation. The third group are those that are toxic from the beginning. The fourth group are of long duration, are usually examples of dysthyroidism and are rarely benefited by surgery and must be regarded as hopelessly invalided. The author is using basal metabolism estimation by indirect calorimetry as an index of the operative risk, the degree of toxicity and the ultimate effects of the operation. He calls attention to thymus hypertrophy reported with hyperthyroidism, but has not been able to confirm this relationship.

He emphasizes the nicety of judgment required in determining when to operate, and how much to operate. Frazier's mortality in 182 lobectomies and 39 ligations is 3.5 per cent, which compares closely with the results of Ochsner, Judd, Porter, Dand and Dowd, and Terry, but is much lower than the average mortality of the average surgeon.

He finds that the nervous phenomena are most consistently relieved by operation; next follows improvement in nutrition and last to be relieved is the tachycardia. Frazier advises double lobectomy rather than the resection of one lobe only. He records a cure in 70 per cent of his cases. He stands unequivocally for the surgical treatment of toxic goitre, and denies any place for non-surgical therapy.

The paper is concise and excellent. The only point on which there might be disagreement is his positive refusal to admit benefit from well managed medical measures including roentgen radiation of the gland.—H. L.

(THYROID) Death after treatment with X-rays in Graves' disease. Secher (K.), Ugesk. f. Laeger (Copenhagen), 1918, **80,** 1613-1618.

The author relates a case of Graves' disease in a 40-year-old woman, who died six days after the last of eight treatments. The autopsy showed unimportant changes of the thy-

roid; in the pancreas were found microscopical carcinomatous particles. In a following number of the journal Prof. Fischer contends that the death could not be ascribed to the treatment with X-ray.—K. H. K.

(THYROID) Demineralization of the teeth produced by thyroid disorders (La desmineralizacion de los dientes producida por afecciones tiroideas). Boyé (E. A.), La Tribuna Odontológica, 1919, **3**, —, (No. 6).

In a girl of 16 all the teeth were carious or totally destroyed. Little by little the symptoms of Graves' disease developed (goitre, tachycardia and tremor). Her general aspect became somewhat senile, the skin being dry and wrinkled; menstruation was irregular and at times abundant, and the lower limbs became extremely fat. Before the appearance of the Graves' symptoms a diagnosis of myxedematous cachexia was made. The symptoms manifested demonstrated the possibility of the coexistence of myxedema and Graves' disease.
—B. A. H.

(THYROID) Dosage in the therapeutic administration of thyroid gland substance. Carver (A. E.), Brit. M. J. (Lond.), 1917 **(ii)**, 515.

Two sources of possible error in the administration of thyroid gland are pointed out: 1. The fact that in the official preparation (B. P.) the substance is presented in concentrated form, whilst in the products of some of the commercial houses it is presented in approximately the strength of fresh gland. 2. The use of the term "ext. thyroidei," which indicates neither of the above preparations, specifically, but leaves to the chemist the decision as to which of them shall be supplied.—L. G. K.

(THYROID) Effects of external temperature upon the toxicity of thyroid. Stoland (O. O.) and Kinney (M.), Am. J. Physiol. (Balt.), 1919, **49**, 135-136.

The research was undertaken because the toxic dose of desiccated thyroid, as reported by different investigators, varies greatly. Three series of albino rats were kept at temperatures of 32, 25 and 18° C. All except controls received 0.2 gms. of desiccated thyroid per day. The series kept at 32° C. lived an average of 7.3 days; that at 25° C. 22 days, and that at 18° C. more than 32 days. The toxicity, therefore, varies with the temperature, being greater at higher temperatures. All the animals fed with thyroid and the controls kept at 32 and 25° C. developed the normal resting type of

gland with low cuboidal epithelium, but the controls kept at 18° C. developed the active type of gland with small amount of colloid and columnar epithelium.—L. G. K.

(THYROID) Electrocardiograms in Graves' disease and the influence of cold mud baths (Über das Electrocardiogramm bei Morbus Basedowi und seine Beinflussung durch kühle Moorbäder). Leidner (J.), Zeitschrift für Balneologie (Berlin and Vienna), 1919, **11**, 119.

In all cases of Graves' disease the T-wave was abnormally high. In serious cases the R-wave is also increased. The diastolic interval is shortened. The mud baths have a good influence on this electrocardiogram.—J. K.

(THYROID) Etiology of endemic goitre. Sinclair (H. H.), Am. Med. (Burlington, Vt.), 1916, N. S. **11**, 852-854.

Sinclair has noticed the great prevalence of goitre in Walkerton, Ontario, especially in women, and more particularly in those residing along the course of two streams. He has seen goitre in all the domestic animals thereabouts and in fish from one of the streams. He reports several children born with goitre and in every instance the mother was goitrous. He does not attribute the goitre to an excess of lime in the water because goitres are prevalent in northern Ontario where no limestone exists. Sinclair found ameba in the intestinal excretions of all domestic animals and man in the goitrous district, and also in the drinking water. He makes the interesting observation that dark, thick skinned fox hounds and Angus cattle (dark, thick skinned) do not develop goitre, whereas all other dogs and Jersey and Ayrshire cattle do. He believes goitre to be more common in the families of the blonde type. Goitre was very rare with the first settlers, but has increased enormously with each generation and these generations have smaller families and more difficult pregnancies. The author believes amebic infection the cause of the decreasing birth rate and claims to have developed a treatment which eliminates the amebae and this is accompanied by reduction of the enlarged thyroid to normal. The cure is not described! The article is by no means convincing.—H. L.

(THYROID) Exophthalmic goitre. Miller (C. S.), New York M. J., 1917, **106**, 1210-1213.

The present indications are that goitre is non-infectious and is not caused by a foreign toxin introduced into the body, either by food, drink or other means. Inasmuch as goitre is

developed in persons subject to nervous strain, and present normally in pregnancy and menstruation, it is reasonable to infer that all cases point to the development of some poison within the body due to faulty metabolism. In turn, this faulty metabolism is influenced by the habits and life of the individual.—H. W.

(THYROID) Exophthalmic goitre; strumectomy with a talk on the surgical pathology of the thyroid gland. Murphy (J. B.), Surg. Clin. Phila., 1916, **5**, 1077-1084.

The clinical history of a married woman, aged 49 years, with tachycardia, tremor, tumor, exophthalmos and certain mental symptoms is recited. The author's comments and description of the operation include a discussion of a classification of goitres. Three main anatomical types are described and briefly illustrated viz., the vascular, the connective tissue, and the hyperplastic types.—J. F.

(THYROID) Exophthalmic goitre. With special reference to the etiology and treatment with radium. Aikins (W. H. B.), New York M. J. (N. Y.), 1916, **104**, 49-53.

Whatever part the thyroid and other endocrine glands plays in the setting of exophthalmic goitre, the conclusion seems to be that injury to the nervous system is by far the most important etiological factor. The use of radium in certain refractory cases seems to be of decided effect. From a consideration of seven cases the author concludes that when radium is applied over the thyroid, the more penetrating rays diminish the vascularity and reduce the secretion of the gland. —H. W.

(THYROID) Exophthalmic goitre and its treatment. Berg (C.), Norsk Mag. f. laegevid. (Christiania), 1919, **80**, 218.

Many years' experience in the conservative treatment of the disease leads the author to emphasize the etiologic importance of recurrent infections of pharynx and tonsils. Very satisfactory results have been obtained with prolonged massage of the mucous membranes of nose and throat. The author employed this method in eleven cases upon which he reports. In general the treatment was given about thirty-five times in each case. If amelioration results it appears after the sixth or eighth application. If improvement does not appear after ten or twelve treatments the method gives little hope of success and should be abandoned.—K. M.

(THYROID) Exophthalmic goitre in a girl. Gittens (C. W.), Brit. M. J. (Lond.), 1918 **(ii), 465.**

A typical case in a girl of twelve.—L. G. K.

(THYROID) Experimental pathology of goitre. Zueblin (E.), New York M. J. (N. Y.), 1916, **104,** 1186-1189; Tr. Am. Therap. Soc. (N. Y.), 1916-17, 78-84.

A short review of the ideas accepted and refuted as to goitre etiology.—H. W.

THYROID, Experimental goitre in rats (Proefondervindelijkonderzoek der schildkliervergrooting bij ratten). Potter (A.), Nederl. Tijdschr. v. Geneesk. (Haarlem), 1919, **63** (1), 2238.

In Utrecht goitre is very frequent. In Amsterdam it is rare. The author fed young adult rats with: 1, raw water of the Utrecht water supply company; 2, the same water, but boiled; 3, mineral water from Amsterdam; 4, mineral water from Utrecht; 5, pasteurized milk and 6, raw water of the Utrecht water supply company to which 36 milligrams dried sea-salt from den Helder was added. After 3, 5, 6 and 9 months feeding, respectively, the animals were killed by chloroform. The animals given boiled or unboiled water from Utrecht and those receiving mineral water from Utrecht had goiter. Those to which water from Amsterdam was administered had no goitre. Those to which pasteurized milk had been given had a goiter but smaller than in the other cases. The largest goitres were seen in the animals to which water from Utrecht with salt had been given. (The author had added this to give the water from Utrecht the same quantity of salt as the water in Amsterdam.) In all goitres a marked hyperaemia was observed.

In Switzerland and South Germany the water becomes harmless by boiling. In Utrecht this does not happen.—J. K.

(THYROID) Experimental researches on the alteration of the thyroid gland in rats, which drank the deep heather-water of Utrecht and some other waters. Potter (A.), Psychiatrische & neurologische bladen (Amsterdam), 1918. Feestbundel Winkler, 523.

The same article (but more detailed and translated into English) as in Ned. Tijdschr. v. Geneesk., 1919, **63,** (I), 2238 and abstracted from the Dutch paper.—J. K.

THYROID gland, Carcinomas of the—in dogs. Forman (J.), and Reed (C. I.), Ohio J. Sci. (Columbus), 1917, **17,** 177.

This paper describes fifteen enlargements of the thyroid glands of dogs and attempts to correlate these with the well known types of thyroid carcinoma in man as well as with the general principles of oncology. Among the thyroids of 271 dogs five malignant goitres were encountered. These, together with ten other specimens already at hand, were described. These tumors were divided into four groups similar to those already described in case of human carcinoma:

1. Proliferating struma, two specimens.
2. Spindle celled carcinomas simulating sarcomas, two specimens.
3. Adeno-carcinomas, ten specimens.
4. Cysto-carcinoma papilliferum, one specimen.

The tumors are undoubtedly carcinomas. They are all due to new growths of the glandular epithelium, the cells of which do not present typical differentiation. They have lost their polarity and normal arrangement. In certain instances these losses are so marked that from individual section it can not be ascertained that the tissue is at all related to the thyroid gland. All gradations between this and definite tubules containing colloid are observed. The growths have infiltrated more or less the surrounding glandular structure. In the more advanced cases, secondary nodules were found in distant parts, more particularly in the lungs. Because of the source of the material, the exact ages of the dogs could not be determined, except in one instance in which the animal was known to be twelve years old. All the others, however, judging by their activity and the condition of the teeth, were old.—J. F.

The THYROID gland, its function and diseases. Herrick (W. J.), Iowa State M. Soc. J. (Des Moines), 1919, **9**, 212-218.

The function of the thyroid gland is said to commence in utero, or soon after birth (Wolfler). Horsley considers that it commences before birth, but it is greatest during the period of growth, lessening as the vital process declines. The influence of the thyroid secretion on the morphology of the organs of generation in both sexes has been demonstrated by many observers. It is ancient tradition that the thyroid enlarges at the first menstruation, in certain women, each period producing an appreciable enlargement of the gland. A suppression of menstruation often produces a swelling of the gland, which disappears on the reestablishment of the flow. The effect of the thyroid development on puberty is of great importance, Breca ("Goitre and Cretinism," 1891), states that in the complete cretin puberty is never established. Acute inflammations of the thyroid were observed in the middle of the

seventh century, terminating as suppurative goitres. Libert in 1862 and Bauchet in 1877 wrote monographs on the subject which are classical in France. The thyroid gland is subject to two kinds of lesions in tuberculosis; it may be invaded by the tubercle bacilli with the development of the typical granulations, or the toxins formed elsewhere may produce sclerosis of the gland and consequent loss of function. Cancer of the thyroid gland is rare, occurring only nineteen times in 10,000 cases and very rarely except in glands which are goitrous. Sarcoma of the thyroid is rare and, curiously, seems to be more common in men than in women. It usually develops between the ages of fifty and sixty years.—Author's abstract, abbreviated.

(THYROID) Goitre; an analysis of 125 cases with a note on the treatment. Watson (L. F.), New York M. J., 1917, **106,** 549-550.

Present observations indicate that both non-toxic and toxic goitres occur later in life in non-goitrous localities than in sections where the disease is prevalent. Most patients noticed the development of toxic symptoms as the goitre became more chronic; 18 per cent of the mildly toxic patients became exophthalmic after an average period of eight years. In exophthalmic goitre 45 per cent of the patients cured by quinine and urea injections gave a history of acute onset of symptoms, while 54 per cent had a goitre for some time previous to exophthalmic symptoms, which were first noted 2.4 years before examination at an average age of 37. The average time elapsing before disappearance of the goitre was five months. In non-exophthalmic, toxic goitre those patients who were cured by quinine and urea injections noted symptoms of intoxication 1.7 years before examination, at an average age of 33.5 years. In such cases the goitre disappeared within one to twelve months, averaging four months. The number of patients cured is highest in the group of those who came for treatment early in the disease. A goitre that has once disappeared has never returned. Four pregnant women obtained relief from hyperthyroidism following injections and went to term without recurrence and had normal deliveries. Quinine and urea injections are strongly advised in selected cases of goitre. If the best results are to be secured, hyperthyroidal patients must have at least a year of mental and physical rest after treatment. (Perhaps the year's rest insisted upon by the author is the major factor in the cure of so-called hyperthyroidal cases).—H. W.

(THYROID) Goitre and drinking water (Krop en drinkwater). Kappenburg (B. D. G.), Geneeskundige Bladen (Haarlem), 1919, **21,** 145.

Practically the same article as the author's inaugural dissertation, previously abstracted in this Journal.—J. K.

(THYROID) Goitre and its treatment (Om struma, strumabehandling og jodbasedow). Kjolstad (S.), Norsk Mag. f. laegevid. (Christiania), 1918, **79,** 265-282.

The author reports his personal experience from a Norwegian district where goitre is prevalent. As is usually the case in such districts, toxic goitre is very rare. As to the treatment, he has been well satisfied with iodine in small doses; only in one case marked toxic symptoms resulted from the treatment. The treatment is discussed at length with many case reports.—K. M.

(THYROID) Goitre, in-crook ankle, and stunted growth. Oliver (J. O.), Brit. Med. J. (Lond.), 1918, **(ii),** 208.

Nothing new.—L. G. K.

(THYROID) Goitre operations with the tracheoscope (Strumaoperationen bei eingeführtem Trachescop). von Eicken (C.), Centralbl. f. Chir. (Leipzig), 1919, **46,** 369.

Of technical surgical interest.—J. K.

(THYROID) Goitre surgery with report of twenty-eight cases operated upon with one death. Torrance (G.), Boston M. & S. J., 1917, **177,** 700-702.

Of twenty-eight thyroid operations ten were for cystic goitres; ten exopthalmic; one with a single large cyst resembling a parovarian cyst; one for small calcified growth in the right lobe; six adenomata, three of which were substernal and produced marked symptoms.—H. W.

(THYROID) Graves' disease; clinical studies of the etiology and treatment. Solling (H. A.), Dissertation, Copenhagen, 1916, pp. 325.

The author considers Graves' disease as infectious for the following reasons: It may begin in direct connection with infectious diseases. The thyroid gland may hypertrophy in connection with the infection; Basedow patients are much disposed to throat infections. Anatomo-pathologically the

thyroid gland shows polymorphism of the follicles, proliferation and desquamation of the epithelium, loss of colloid and infiltration with lymphocytes and plasma cells—a picture that the author explains as inflammatory. Bacteriological studies showed signs pointing toward inflammatory conditions. (The examinations seem very incomplete: Abstractor.) Regarding treatment the author considers the operative therapy the best. It is best to make a resection of the largest lateral lobe and isthmus and a section of the other lateral lobe. The author describes technical details and refers to ninety-seven histories of operated patients and about three hundred articles published on the subject.—K. H. K.

(THYROID) Histology of goitre heart (Histologische Befunde an Kropfherz). Fahr (T.), Centralbl. f. allg. Path. u. path. Anat. (Jena), 1916, **27**, 1-5.

Fatty degeneration of the heart muscle appears to have been the only lesion found by other investigators in "goitre hearts." Fahr found in his cases areas of round cell infiltration and some fibrosis. The round cells consisted chiefly of lymphocytes and the collections of these cells were quite localized, showing a slight tendency to accumulate in the neighborhood of blood vessels. Fahr considers that the toxin which causes the lesions observed by him and by others acts on the heart muscle directly.—J. P. S.

(THYROID) Hyperthyroidism. Snow (W. B.), Am. J. Electrotherap. & Radiol. (N. Y.), 1916, **34**, 21-33.

The author's conclusions are quoted below. To some extent they are justified, but we believe they are rather extreme and will not be substantiated in larger series of cases.

"Comparison of reports show that surgery has not given so good results as drug methods of treatment. The only cases that may be properly delegated to the surgeon are cases of simple and cystic goitre. All early cases of Graves' disease and probably many advanced, can be cured by the static wave current applied over the thyroid gland and the dorsal and cervical region of the spinal cord. A comparison of results with reports of those who have confined their treatment to the X-ray, and reports of but partial results, with our joint use of the X-ray and static current, indicates the greater value of the combined method. Expereince leads us to believe that exophthalmic goitre is curable in all cases by the method outlined in this paper."—H. L.

(THYROID) Hyperthyroidism and acute Graves' disease following thyroiditis typhosa (Über Hyperthyroidismus und akute Basedowsche Krankheit nach typhöser Schilddrüsenentzündung). Walko (K.), Med. Klin. (Berlin), 1917, **13,** 357-361.

In 1 per cent of the cases of typhoid fever an acute inflammation of the thyroid is seen. Not infrequently this inflammation gives rise to the formation of an abscess; from the pus typhoid bacilli may be isolated in pure culture. The author observed thirty-nine of these cases. In twenty-one of them symptoms of Graves' disease were noted.—J. K.

(THYROID) Hyperthyroidism as a cause of irritable heart in soldiers. Thorne (L. T.), Lancet (Lond.), 1916, **(1),** 153-4.

Thorne did not find the thyroid enlarged in such cases. See Endocrin., 1917, **1,** 77.—L. G. K.

(THYROID) Hypertrophy of the muscle in cretinism (Spierhypertrophie bij cretinisme). de Bruin (J.), Nederl. Tijdschr. v. Geneesk. (Haarlem), 1917, **61,** (1) 1328-1330.

A short description of a case of cretinism in a child of three years with an enormous hypertrophy of all muscles. This combination is very rare.—J. K.

THYROID hypertrophy in pregnancy. Albeck, Ugeskrift for Laeger (Copenhagen), 1916, **78,** 678.

The author has found that there is no vomiting in case of pregnant women who have large and soft thyroid glands.
—K. H. K.

(THYROID) Influence of thyroid gland upon metabolism, I. Carbohydrates. Sekita (N.), Tokyo Igakukai Zasshi, 1918, **32,** 1-49.

The author takes exception to the teachings of the von Noorden school in regard to the influence of the thyroid upon metabolism and presents the following points for consideration. He is unable to find any function of the thyroid the absence of which prevents the production of glycosuria following adrenalin injections. Furthermore, the adrenalin with its glycosuria, counteracts the cachexia following thyroid extirpation as well as other forms of high grade weakness. The conclusion drawn is that the influence of this organ upon carbohydrate metabolism has not been proven. (Abst. in China Med. Jour. 1919, **33,** 270).—L. G. K.

(THYROID) Influenza and loss of hair (Influenza und Haarausfall). Sack, Deutsche med. Wchnschr. (Berlin), 1919, **45**, 784.

As in all infectious diseases, in influenza a loss of hair and even baldness may be observed. The author saw an actual epidemic of baldness after influenza in young girls with symptoms of dysthyreosis and goitre. Further details are not given.
—J. K.

(THYROID) Intrathoracic goitre. Lahey (F. H.), Boston M. & S. J., 1917, **176**, 341-344.

Substernal or intrathoracic goitres are either adenomata or cysts. Such goitres originate from the lower poles and isthmus of the thyroid gland and gradually develop downward into the thorax along the path of least resistance. The symtoms produced by such growths are as follows: a feeling of pressure beneath the sternum on swallowing; huskiness of voice; dyspnoea, and intermittent attacks of suffocation. Such tumors demand surgical attention and should be delivered in toto; never by morcellation or piecemeal. Details of surgical procedure are given.—H. W.

(THYROID) Medical treatment of exophthalmic goitre. Crotti (A.), Ohio State M. J. (Columbus), 1917, **13**, 8.

Of general interest. A resumé of medicinal agents used in the treatment of exophthalmic goitre.—C. McP.

(THYROID) Medical treatment of goitre. Ryan (G. M.), Proc. Am. Therap. Soc., J. Am. M. Assn. (Chgo.), 1919, **73**, 447.

In treatment, the conditions must be clearly indicated. There has been no result as yet from efforts to find a counteracting agent for the thyroid toxin. Quinin hydrochlorid and salicylates have been used. Tincture of aconite is used to moderate the tachycardia. Attention must be paid to environment and hygienic conditions. Absolute rest, physical and mental, is an essential. An ice bag to the gland and small doses of bromid are indicated in acute exacerbations. The use of quinin and urea sometimes achieves good results. Use of the roentgen ray and removal of the tonsils are indicated in selected cases. The intelligent care of a good trained nurse is the most efficacious step in treatment, proper home care of these patients being practically impossible. In some cases the combined efforts of the medical man and the surgeon are necessary, the medical care preceding the operation, and supplementing it until recovery is complete.—Quoted.

(THYROID) Menopause and myxedema (Klimax und Myxödem). Deutsch (G.), Münch. med. Wchnschr., 1919, **66,** 589.

Description of a case. After extirpation of a large myoma of the uterus the body began to swell; the patient began to lose her hair, perspiration ceased and she became stupid and lost her memory. Tablets of ovarium prescribed, but had no influence. She went to a hospital where the diagnosis of myxoedema was made. The thyroid could not be felt; there was achylia gastrica. Thyroidin, 0.3 gm. daily, was prescribed. She was perfectly cured and the achylia gastrica disappeared. After some time even a hyperchlorhydria was observed.—J. K.

(THYROID) Metropathy of thyroid origin (Metropatia de etiologia tireogena). Schwarzenberg Lobeck (J.), Thesis, Santiago de Chile, 1917.

No significant data are brought forward. The author proposes a method of treatment that is entirely inadequate.
—B. A. H.

(THYROID) Mongolism in a child and myxedema in the mother (Mongolisme bij het kind en myxoedeem bij de moeder). Coenen (J. F.), Nederl. Haandschr. voor Verloskunde (Leiden), 1917, **6,** 265-267.

Description of a child of three years with mongoloid idiocy and myxoedematous symptoms (typical skin, dry hair, and nails). The mother had a classic case of myxedema. A similar case has not been described in the literature. There are only a few cases known of Graves' disease in the mother with myxedema in the child, and of simple myxedema in mother and child.—J. K.

(THYROID) Myasthenia gravis with Graves' disease (Myasthenia gravis mit Morbus Basedowi). Bauer (J.), Wiener klin. Wchnschr., 1917, **30,** 1408.

Description of a post-mortem examination of a case. The thymus weighed 53 grams (the patient was an adult woman). There was hyperplasia of the lymphatic system and thyroid typical of Graves' disease. The abdominal part of the aorta was narrow; the adrenals were normal; the ovaries were small.
—J. K.

(THYROID) Myxedema caused by military service (Myxoedem als Kriegsdienstbeschüdigung). Alexander (A.), Med. Klin. (Berlin), 1917, **13,** 994-996.

Description of a soldier who, after an explosion of a shrapnel shell, developed myxedema. Treatment with thyroid preparations had a good effect. This case is a proof of the view of Ewald, that psychical shock may cause myxedema. Patients with vagotonia show an increased predisposition.—J. K.

(THYROID) New ideas on prophylaxis of endemic goitre (Neue Vorschläge zur Prophylaxe des endemischen Kropfes). Klinger (R.), Cor. Bl. f. Schweizer Aerzte (Basel), 1919, **49,** 575.

The author has repeatedly pointed out the importance of prophylactic administration of sodium iodide, but his publications have had no practical results. He now gives an abstract of an article by Marine (Arch. Int. Med., Vol. xxii) who utilized this method at Akron, Ohio. "It is absolutely necessary to follow the same method in Switzerland," if endemic goitre is to be successfully combatted.—J. K.

(THYROID) Probable pathogeny of endemic goitre. Action of fluorides in small, repeated doses on growth and body temperature (Probable patogenia del bocio endémico. Acción de los fluoruros en pequeñas dosis repetidos sobre el crecimiento y temperatura animal). Goldemberg (L.), Semana Méd. (Bs. Aires), 1917, —, 213.

The author really obtained, not goitre, but only a slight augmentation of colloid in rabbits to which he administered fluorides. Growth was less than in the controls and there was a fall of temperature succeeding the injections. The work does not bear critical scrutiny.—B. A. H.

(THYROID) On the epidemiology of goitre (Zur Epidemiologie des Kropfes). Cemach (A.), Wiener klin. Wchnschr. 1917, **30,** 813.

The author observed 52 fugitives coming from Galicia to Vienna in 1915 and 1916, who developed in Vienna acute goitre. All patients were Jews. They were all poor and lived in most dirty houses. Twenty-eight per cent of the patients were men. None of them had had goitre while they lived in Galicia. This is remarkable for in Vienna goitre is very rare. Treatment was without success in any of the cases.—J. K.

(THYROID) On the influence of fats, lipoids and extracts of thyroid on development and metamorphosis (Versuche über den Einfluss von Fett und Lipoidsubstanzen sowie von enterweissten Extracten der Schildrüse auf Entwicklung und

Wachstum). Romeis (B.), Arch. f. d. ges. Physiol. (Berlin), 1919, **173,** 422.

The author studied the effects of the above substances on tadpoles.

1. The thyroid was extracted with boiling acetone. Upon cooling, the precipitate which forms is separated from the solution. The substances remaining in solution diminish growth and delay metamorphosis. The bodies dissolved from the precipitate by chloroform cause a slight decrease in growth. The rest of the precipitate is inactive. After being treated with toluol and then alcohol, the thyroid residue is extracted with water. The aqueous extract increases growth. The insoluble residue inhibits growth. Both fractions quicken metamorphosis.

2. Thyroid gland was also extracted by ether and alcohol. Substances which inhibit growth and delay metamorphosis were prepared from the ethereal extract. A substance which increases growth was prepared from the alcoholic extract.

3. When a fresh aqueous extract of thyroid is mixed with alcohol, the bodies which remain dissolved quicken metamorphosis and inhibit growth.

4. If all proteins are removed from an aqueous extract of thyroid by tannic acid, lead oxide and barium oxide, the filtrate inhibits growth and delays metamorphosis.

5. Thyreoglandol slightly quickens metamorphosis when great doses are given over a long period. It also increases growth, which is contrary to the influence of fresh thyroid.

6. The more thoroughly the proteins are removed from aqueous extracts of thyroid the smaller is the influence on metamorphosis. It may even be delayed.

7. If in an aqueous extract of thyroid the proteins are decomposed until the biuret reaction is no longer given, these decomposition products inhibit growth and quicken metamorphosis.—J. K.

(THYROID) Partial thyroidectomy with local anaesthesia, scopolamine and morphia. Lahey (F. H.), Boston M. & S. J., 1916, **175,** 566-568.

Reports good results by this method.—H. W.

(THYROID) Physiological action of thyroid hormone. Kendall (E. C.), Am. J. Physiol. (Balt.), 1919, **49,** 136-7.

Data published elsewhere. See Endocrin., **3,** 156.
—L. G. K.

(THYROID) Pulsus arhythmia in Basedow's disease (Om Pulsarytmi ved Morbus Basedowi). Fridericia (L. S.), Ugeskrift for Laeger (Copenhagen), 1916, **78,** 1899-1908.

The author has examined six patients with Graves' disease who all showed an arhythmic action of the heart. Electrocardiographic examination showed that the arhythmia was caused by auricular fibrillation; in some of these cases the fibrillation had a special character in that, in spite of the irregularity and frequency of the pulse, there was no sign of insufficiency of the heart. Digitalis had no effect on the auricular fibrillation.
—K. H. K.

THYROID sterility (Esterilidad tiroidea). Giacobini (G.), La Semana Méd., 1919, —, 253.

No new data are offered.—B. A. H.

(THYROID) Struma intrathoracica. Mayer (K.), Zentralbl. f. Chir. (Leipzig), 1919, **46,** 455.

In Basel intrathoric goitres are seen very frequently. In the case described here, the right lobe had grown into the lung and was surrounded by pulmonary tissue. The form of the lung was normal and the first impression at the post-mortem examination was "tumor pulmonalis."—J. K.

(THYROID) Surgery of the thyroid gland. Porter (C. A.) Boston M. & S. J., 1916, **175,** 551-557; Vermont Med. (Rutland), 1916, **1,** 249-259.

A paper of technical interest dealing with the classification and treatment of surgical lesions of the thyroid. Porter advises operation upon toxic goitres in cases in which improvement is unsatisfactory under medical treatment.—H. W.

(THYROID) Surgical treatment of exophthalmic goitre (Tratamiento quirúrjico del bocio exoftalmico). Bacigalupo (A. R.), Thesis of Buenos Aires, No. 3413.

Bacigalupo utilizes all the observations on Ceballos and Olivieri's operated cases (Endocrin. 1917, **1,** 536 and 1918, **2,** 207) for his doctorate thesis. See these abstracts.—G. P. G.

(THYROID) Surgical treatment of exophthalmic goitre. Crile (G. W.), Ohio State M. J. (Columbus), 1917, **13,** 7.

Of surgical interest. Crile's discussion is based on a series of 674 cases of exophthalmic goitre. His treatment comprised

1, a non-surgical rest period; 2, some surgical measures, such as Porter's injection of boiling water or the ligation of one of the arteries, and 3, after a period of readjustment, a lobectomy. This is then followed by a period of rest, hygiene and dietetic treatment.—C. McP.

(THYROID) The basal metabolism and hyperglycemic tests of hyperthyroidism with special reference to mild and latent cases. McCaskey (G. W.), J. Am. M. Assn. (Chgo.), 1919, **73**, 243-246.

The differential diagnosis of many mild, atypical or very early cases of thyrotoxicosis by means of the ordinary clinical signs and symptoms can be made with only varying degrees of probability. The need is, therefore, very great for definite objective data, either decisive or very strongly corroborative, not only to determine diagnosis, but to estimate therapeutic results. The clinical application of basal metabolism and alimentary hyperglycemia satisfies these demands in a very scientific, practical and satisfactory manner. Basal metabolism can be quickly and accurately determined by measuring the oxygen consumption with the Benedict portable respiration apparatus. The average normal heat production, which is an accurate index of metabolism, is about 39.7 calories for men and 36.9 for women by the "height-weight" formula per square meter per hour under the conditions indicated. Physiologic variations of not more than 10 per cent and nearly always much less than this, may occur in either direction. In hyperthyroidism there is an increase up to 100 per cent or more, according to the severity of the intoxication, which varies in different cases, and in the same case at different times. In hyperthyroidism there is a diminished tolerance of carbohydrates with alimentary hyperglycemia, and also with glycosuria whenever the hyperglycemia exceeds the renal glucose threshold of the individual case. In every case of hyperthyroidism studied (thirty-one cases) the blood sugar content was increased within two hours from 50 to 200 per cent. In 70 per cent of thirty-one cases the maximal rise occurred at the end of the first hour, with a more or less sharp decline at the end of the second hour, proving that the crest had been reached and passed. The very few cases in which hyperglycemia is highest at the second hour may be explained by gastric hypomotility and slow intestinal absorption. The failure of the hyperglycemia to rise proportionately to the increased metabolism and to bear any direct relationship to the intensity of the thyrotoxicosis suggests that it is an indirect phenomenon due perhaps to overexcitation of other organs, for example, the pancreas,

which in exceptional cases fails to respond to the thyroid stimulation.

The application of these tests will probably reveal a much greater incidence of hyperthyroidism than has formerly been recognized, and will especially enable us to make a clear diagnosis between toxic and nontoxic goitres. While a final diagnosis is altogether a question of clinical judgment, and should not be made exclusively in the laboratory; and while neither increased metabolism nor alimentary hyperglycemia is pathognomonic of hyperthyroidism, yet, when rationally correlated with the remaining clinical data, they together make as clear-cut a diagnosis of hyperthyroidism as a positive Wassermann does of syphilis in a suspected case.—Author's summary.

(THYROID) The cause of endemic goitre (Die Ursache des endemischen Kropfes). Isenschmid (R.), Med. Klin. (Berlin), 1917, **13**, 1122-1125.

A good general survey of the theories on endemic goitre. No new data are offered.—J. K.

(THYROID) The circulatory system in exophthalmic goitre. Bram (I.), Internat. Clinics (Phila.), 1919, **1**, 80-90.

The author discusses the signs and symptoms referable to the circulatory system which are commonly observed in hyperthyroidism. He points out that there is no Graves' disease without circulatory evidences; the circulatory system suffers most from the thyrotoxicosis; "it is the heart which ultimately determines the course and prognosis of the disease; its collapse is usually the direct cause of death from Graves' disease."

A consideration of the symptomatology of the heart, blood-vessels and blood, subjectively and objectively, is then stated in a tabulation; this is followed by a detailed seriatim description. Palpitation, at first mild, may become the most troublesome subjective feature, in course of time occasioning extreme nervousness, insomnia, and even anginoid precordial pains. The severity of subjective precordial distress does not depend on the degree of tachycardia; a mild degree of tachycardia may coexist with marked palpitation, and a patient with severe tachycardia may not complain much of palpitation. Dyspnoea from cardiac excitation may engender suspicions of phthisis, and though Graves' disease is often accompanied by pulmonary tuberculosis, we must guard against an omission of a dominant hyperthyroidism. The tachycardia in exophthalmic goitre is characterized by its constancy, occurring even during sleep, and is little if at all affected by digitalis, even in

massive doses. The author points out the necessity of differentiating the heart-hurry of exophthalmic goitre from that of other conditions, eminently emotional excitement, hysteria, neurasthenia, biological and chemical toxemias, anemia, paroxysmal tachycardia, and acute endocarditis. Incidentally, it is pointed out that many cases of rapid heart in soldiers, erroneously diagnosed as "shell shock," when not due to thyroid hyperactivity are instigated by nicotine poisoning in those unaccustomed to smoking. On physical examination in progressive cases, the heart is found to undergo hypertrophic dilatation, the extent depending upon the severity and duration of the thyroid toxemia. On percussion, one may find the area of cardiac dullness blending upward with the dullness of an enlarged thymus. An X-ray examination is a useful corrobora tive procedure. Murmurs may at first be hemic, occurring at the base, but later may become most marked at the apex, because of relative insufficiency through myocardial exhaustion, the continuation of which process may lead to a general anasarca and heart failure. Sahli's "gallop rhythm" is mentioned as an interesting phase of the cardiac physical signs; it is a diastolic phenomenon, occurring as a triple rhythm heard over the entire precordium.

The signs and symptoms referable to the blood-vessels are briefly mentioned. The thyroid gland throbs because of increased vascularity. All the other superficial arteries are often seen to throb as in aortic incompetency. Thyroid throbbing is confirmed by the palpating fingers and systolic thrill and bruit are usually obtainable over the organ and are pathognomonic. A moderate amount of pressure over the thyroid may elicit tenderness, and by expression of some of the blood contents the size of the organ is reduced. The capillary pulse is commonly observed; also dermographia. Systolic blood pressure, though at first increased, gradually becomes lower, and with the advent of material circulatory degeneration, falls considerably below normal.

Aside from the leucopenia with relative lymphocytosis and a diminution of the polymorphoneutrophiles, the blood findings in exophthalmic goitre are not important. In spite of an apparent plethora (due to vasomotor instability) there is usually a degree of secondary anemia which may in part explain the patient's weakness. Hemorrhages from the mucous membranes due to vasomotor paralysis, may give rise to epistaxis, hematemesis, hemoptysis, melena, and the like, and may endanger life through the associated diminished coagulability of the blood. Hyperglycemia (probably of alimentary origin), is commonly observed, indicating a degree of carbohydrate intolerance.

Bram concludes his paper by an appeal for more conservatism in the treatment of exophthalmic goitre. Because of lack of satisfactory proof of permanent cures by the knife, surgery is not the means of restoring the patient to former health and usefulness in the great majority of cases. On the other hand, the writer maintains that skillful, patient, persevering internists affect permanent cures in at least 75 per cent of their patients.—Author's Abst.

(THYROID) The distribution and etiology of goitre (Verbreitung und Aetiologie der Struma). Lobenhoffer, Münch. med. Wchnschr., 1919, **66,** 111.

Comparison of the frequency of goitre in Oberfranken and Würzburg. In Oberfranken it is more frequent and accessory thyroids (Nebenschilddrüsen) are more frequently seen than in Würzburg.—J. K.

(THYROID) The heart in goitre (Das Kropfherz). Chvostek (F.), Wiener klin. Wchnschr., 1917, **30,** 383, 643-648; Med. Klin. (Berlin), 1917, **13,** 464.

There are three forms of thyreogenic heart disturbances:

I. The torpid form (type of Bauer), giving systolic murmur over the arteria pulmonalis, with an accentuated pulmonic second sound, and dilatation to the left. Not all these symptoms need be present. Patients with this form offer but little complaint of the heart. This type is seen not only in goitre, but it may be seen in all abnormal constitutions, even without goitre. On the other hand there exist many patients with goitre without the symptoms of Bauer. The thyreogenic origin has not been proved or made probable.

II. Thyreogenic hypertrophy of the heart (type of Hinnich). This form is often seen in young goitrous patients. In these cases percussion shows but little change. There are accidental murmurs; the rhythm of the pulse is very easily influenced. Mostly it is combined with tachycardia (type of Kraus). Chvostek does not believe that this type is of a thyreogenic origin. It is too often seen without symptoms of an abnormal function of the thyroid or of a goitre.

III. Thyreotoxic heart. The chief symptom is the tachycardia; the heart beat is strong; blood pressure is high and is raised through activity of the muscles. Only in the severe cases is the heart hypertrophic. Administration of iodine has a good influence on these hearts. The author discusses the question whether these heart conditions are the same as seen in Graves' disease. There are, however, such differences between Graves'

disease and goitre that it is a priori not possible to believe that the heart in this disease would show the same disturbances. It would be necessary to examine a large amount of pathological-anatomical material to settle this question definitely. Chvostek still discusses the so-called mechanical cause of the goitre heart; this is supposed to be caused by pressure on the trachea followed by a disturbance in the circulation in the lungs. He comes to the conclusion that the existence of the "mechanisches Kropfherz" has never been proved.—J. K.

(THYROID) The heart in myxedema (Das Myxoedemherz). Zondek (H.), Münch. med. Wchnschr., 1919, **66**, 681.

In myxedema changes in the heart are often observed. Typical is bradycardia with dilatation of the heart to the right and to the left. Not so seldom these changes in the heart are the first symptoms of a latent myxedema. In diseases of the other endocrine organs these symptoms of the heart are never observed. The electrocardiogram in myxedema has a typical form, of which the author gives some illustrations. Organotherapeusis should be continued until the electrocardiogram begins to show the form of that in Graves' disease. Then it is necessary to discontinue the treatment, immediately.—J. K.

(THYROID) The significance of the nitrogen balance in thyroid disease. Janney (N. W.), Med. Rec. (N. Y.), 1917, **91**, 352.

The author considers metabolic disturbance the fundamental factor in thyroid disturbance and the degree of disturbance does not always compare with the severity of the clinical symptoms. He finds the nitrogen balance an accurate means of ascertaining the metabolic state of the patient and a delicate gauge of the effect of treatment. Cretin and exophthalmic goitre patients were found to be unable to assimilate their food as well as normal individuals.—H. L.

(THYROID) The treatment of hyperthyroidism. Grier (G. W.) Am. J. of Roentgenol., 1917, **4**, 300-303.

Grier divides hyperthyroid cases into four groups:

1. Simple Hyperthyroidism—A persistent exaggeration of the physiological hyperthyroidism of adolescence or pregnancy. These cases are cured in 100 per cent of cases by medical or roentgen treatment. The author sees no indication whatever for surgery in this group.

2. Acute Exophthalmic Goitre—Acutely ill cases of Basedow which become gradually progressively worse and either die or become examples of

3. Chronic Exophthalmic Goitre—in which the subjective symptoms are less pronounced and the objective signs have become fairly stationary.

4. Basedowidized Goitre (hyperthyroidism developing in an old goitre). The hyperthyroidism in these cases is very amenable to X-rays, but the goitre itself usually requires surgical treatment.

Grier claims to have cured 87.5 per cent out of a total of 63 cases. The most favorable results are in the following order: Simple hyperthyroidism, acute exophthalmic goitre, chronic exophthalmic goitre. Cases respond to roentgen treatment according to the length of time the disease has been present, and not according to the severity of the symptoms. The improvement in very severe cases is often miraculous. But the longer the disease has been present and the harder the gland, the less satisfactory the result. Little difference in result is noted between gas tubes and Coolidge tubes. Grier advocates treatments at longer intervals and with moderate, but not maximum, doses. In most cases the author would prefer roentgen treatment to surgery, believing it more effective. Furthermore the death rate due to roentgen treatment as a procedure is nil.

—H. L.

(THYROID) Thyroidine, effect upon the basal metabolism. Krogh (Marie), Ugeskrift for Laeger (Copenhagen), 1916, **78**, 2337-2341.

The basal metabolism in man, i.e., the metabolism in absolute rest, fourteen hours after the last preceding meal, was determined by the absorption of the oxygen per minute. A Basedow patient showed an increase of 80 per cent, and a myxedema patient, a diminution of 40 per cent from the normal. It is a problem if thyroidine has an effect through an augmentation of muscular activity or through more active combustion. The author took electromyograms from a Basedow patient and a normal person at rest. The myograms showed no difference. But it might possibly be true that the thyroidine had an effect on the autonomic nervous system, increasing the muscular tonus and, through that, the metabolism. To test this hypothesis she narcotized frogs with ethyl urethane to the point of absolute loss of reflexes and respiration. The animal was after that placed in Krogh's apparatus for micro-respiration for several days, after dosing with thyroidine through a stomach tube. In another series of experiments all the nerves to the extremities were cut before placing the frog in the respiration apparatus. It was found that the increase of metabolism was much less in the frogs with the cut nerves.

It is therefore probable that the augmentation of metabolism is caused by an increased muscular tonus through irritation of the autonomic nervous system.—K. H. K.

(THYROID) Toxic goitre with melancholia; strumectomy. Murphy (J. B.), Surg. Clin., (Phila.), 1916, **5,** 1073-1075.

A case is presented in which a married man, aged 26 years, comes to the author on account of depression and extreme irritability. The patient is weak and has attacks of vertigo and fainting. There is a slight enlargement of the thyroid gland. A strumectomy is performed and a colloid adenoma found. Six months later the patient is examined and is found to have lost all of his former mental symptoms. He gets on well with his associates, is able to sleep at night, and carry on his work.—J. F.

THYROID, Treatment of Graves' disease (Die Behandlung des Morbus Basedowi). Salzmann, Ztschr. f. Aertzliche Fortbildung (Jena.), 1919, **16,** 310.

The treatment of Graves' disease must be in the first place an internal one. Every treatment can show good results, but the best perhaps is the treatment with X-rays. Only cases in which the goitre presses the trachea and cases not benefited by internal treatment should be operated. Contraindications against operation are heart failures, status thymolymphaticus and the acute forms of Graves' disease.—J. K.

(THYROID) Treatment of Graves' disease with X-rays. Fischer (J. F.), Ugeskrift for Laeger (Copenhagen), 1916, **78,** 1755-77.

The author has treated 94 cases with X-rays; 49 had the classic symptoms, the other 45 only goitre and tachycardia. In 80 per cent of the cases he obtained good results; 18 became neither better nor worse; 15 of 76 were absolutely cured; the others improved in different degrees. Exophthalmus was the most refractory symptom. The author emphasizes much a good technic. The X-ray treatment does not ever give such brilliant results as the operative, but it is much less dangerous.

—K. H. K.

(THYROID) Two cases of thyroidism after X-ray treatment. Verning (P.), Hospitalstidende (Copenhagen), 1917, **60,** 741-753.

In two cases of Graves' disease the patient has died after X-ray treatment. The first patient died after high fever and

severe heart-symptoms. In the other there was complication with angina.—K. H. K.

(THYROID ADRENIN) The influence of thyroid preparations on the action of adrenin (Über den Einfluss einiger Thyreoidpräparate auf die Adrenalinempfindlichkeit). Santesson (C. G.), Skand. Arch. f. Physiol. (Leipzig), 1919, **37,** 185.

When small doses of adrenalin are injected in rabbits (0.01—0.03 mg. per Kg. weight) a rise of blood pressure is observed which is followed by a fall below the original. When the same doses are repeatedly injected at short intervals (3 or 4 times every 5—12 minutes) each time the same rise is seen. The author has made emulsions with gum arabic from thyroid preparations. He used the tablets of Buroughs & Wellcome, a fresh extract from the thyroid of the pig, thyreoglobuline (Astra), thyreojodin (Astra), whole gland digested by pepsin and a mixture of thyreoglobuline and thyreoalbumin. Intravenous injection of one of these emulsions produced a short rise, followed by a marked fall of blood pressure. Sometimes the animals died from weakness of the heart. Another effect was that the blood vessels became more sensitive to adrenalin. When an intravenous injection of adrenalin is preceded by an intravenous injection of thyroid, the rise of blood pressure is much stronger and lasts much longer than without this preceding injection. (See Endocrin., **1,** 58; **2,** 460.)—J. K.

(THYROID OVARY) Hypertension in women. Riesman (D.), J. Am. M. Assn. (Chgo.), 1919, **73,** 330-331.

Most of the surprisingly large number of cases of hypertension which Riesman has seen in women can be placed in a definite group having the following features in common: They are stout, overweight and undersized; they have borne many children; they present no evidence of syphilis; they are over 45 years of age, mostly between 50 and 60; practically all are constipated and some suffer from intestinal indigestion; up to a certain point they show an amazing tolerance to high blood pressure; usually the heart is enlarged, commonly to the left; the arteries are soft, even the retinal vessels seldom showing involvement, and the kidneys appear to be competent. A similar hypertension is seen in men, but it is less frequent and less innocent. Worry seems to be an important etiologic factor. The fact that the disease is first manifested during the menopause in most of the cases indicates that the ovaries are probably involved in its causation. The pressure is surprisingly high. In the cases studied it averaged: Systolic, 211; diastolic,

105 and pulse pressure, 106. The highest seen were 310, systolic, and 160 diastolic.

Another type designated non-goitrous, thyrotoxic hypertension is also mentioned. It also occurs with preponderating frequency in women. The patients are near or past the menopause, are not overfat, sometimes spare, often single. They complain chiefly of palpitation and headache; are emotional, and have a tendency to sweating. The heart is rapid, even to the point of tachycardia; the hands are tremulous. There is often a von Graefe sign, but no exophthalmus and no goitre or other tangible abnormality of the thyroid gland. The systolic pressure ranges from 150 to 210, with a diastolic pressure of from 90 to 120. While there is no positive proof of a thyroid cause, and while the patients are nearly all beyond the age at which hyperthyroidism usually appears, the symptoms nevertheless closely resemble those of a thyrotoxicosis. The condition may be pluriglandular in origin. It is apparently not renal or arteriosclerotic. Iodids do not benefit but rather harm these patients. The thyrotoxic form is more incapacitating than the first variety mentioned.

As to treatment, relatively little can be done. The diet should be restricted largely to milk and vegetables with rest in some cases and graduated exercise in others. Vasodilator drugs should not be used. Corpus luteum gave in the more recent cases excellent results, lowering the blood pressure and improving subjective symptoms. In the thyrotoxic cases rest is of the greatest importance. Bromides at times with small doses of tincture of veratrum seemed beneficial. All possible measures should be taken to prevent worry.—R. G. H.

(THYROID OVARY) The relation of the thyroid to confusional insanity and melancholia. Wright (J. S.), Kentucky M. J. (Bowling Green), 1919, **17**, 271-273.

Wright discusses the thyroid in its relation to mental disease. The endocrine organs are regulators of metabolism and as such the thyroid and ovaries are chiefly concerned in the metabolic instability occurring in pregnancy producing psychoneuroses and puerperal insanity. After the menopause the mental attitude reverts to a neutral type and manic depressive insanities and melancholias of involutions are seen; mental improvement has followed administration of thyroid extract alone or in combination with other glandular extracts. So called "hereditary insanity" is regarded as an inherited derangement of the glands of internal secretion, manifested by insanity. Considering all insanities of toxic origin, Wright directs attention to hormone toxicosis as a cause not to be overlooked.

—Author's Abstract.

(THYROID OVARY) The use of X-rays in hyperactivity of the ductless glands: with special reference to exophthalmic goitre, and certain forms of ovarian dysmenorrhea. Hernaman-Johnson (F.), Practitioner (Lond.), 1917, **99**, 10-18.

The author advocates in exophthalmic goitre small doses of X-rays, frequently repeated, instead of a considerable treatment once in ten days to three weeks, as practiced by many roentgenologists; he urges radiation three times a week, and in severe cases even daily doses. He cites a remarkable example of an extremely ill patient given up to die in a few days, who, after thirty sittings, in two months, was able to return to work and was well and at work two years later. The writer has not followed up any of his cases long enough to justify him in saying that the cure is permanent, but he has seen patients remain in perfect health for two and three years after the termination of a three months' course of treatment. Tremor, pulse rate, sweating, sleep and nutrition are rapidly benefited. Exophthalmos and the enlargement of the gland are not markedly reduced. The author also believes that any case of dysmenorrhea which has resisted ordinary treatment, and in which no gross surgical lesion is present, is suitable for X-ray therapy. Three courses of treatment are necessary in consecutive intermenstrual periods.—H. L.

(THYROID and PARATHYROID) The influence of thyroid and parathyroid on diseases of the skin (Schilddrüse und Epithelkörperchen in ihrer Beziehungen zu Erkrankungen der Haut). Pulay (E.), Ergebn. inn. Med. u. Kinderheilk. (Berlin), 1919, **16**, 244.

A very long article. The author is convinced that myxedema and the changes of the skin in myxedema are due to a hypofunction of the thyroid. The eczemas as they are often seen in myxedema, may be of thyreogenic origin, but this has never been proved. The diseases of the skin as they are often seen in Graves' disease, have no relation to the thyroid. Urticaria and scleroderma occurring in Graves' disease have the same primary etiology as do other manifestations of that condition. They are caused by sympathicotonie. In myxedema treatment with thyroid gland is indicated. But though tried by many authors in cases of psoriasis urticaria and scleroderma, these diseases are actually contraindications to this treatment. It is impossible to give, offhand, a prescription for organotherapeutics in skin diseases. The correlation between the organs of internal secretion are so complicated that in each case various combinations must be tried until a suitable one has been discovered.—J. K.

(THYROID, PROSTATE) Graves' disease in men during the war (Zur Kenntnis des Männer und Kriegs-Basedow). Marcuse (M.), Deutsche med. Wchnschr. (Berlin), 1917, **43**, 70-73.

The author discusses the question whether Graves' disease in men is the same malady as in women. It is remarkable that in men symptoms of Graves' disease are often observed without goitre. The author describes three such cases in young men without goitre, but with hypertrophy of the prostate. He believes that in men the prostate can be the cause of this disease.—J. K.

(THYROID, THYMUS) Influence of the thymus on the thyroid and on growth (Beziehungen der Thymus zur Schilddrüse und zum Wachstum). Adler (L.), Med. Klinik (Berlin), 1917, **13**, 491; München. med. Wchnschr., 1917, **64**, 1051.

Hart has maintained a view that diseases of the thymus are able to produce Graves' disease without disease of the thyroid. Adler confirms this view and believes that his experiments on frogs prove that the cause of Graves' disease never is an abnormal function of the thyroid. The goitre is caused by Graves' disease, and not, as many investigators believe, vice versa. When pregnant guinea pigs are fed with large doses of thymus they abort. When the animals are killed after this abortion, one finds hemorrhage in the adrenals. When smaller doses of thymus are given the development of the embryo, according to Adler, proceeds much faster than normal, and perfectly normal young animals are born much earlier than in the controls.—J. K.

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Corpora Lutea (water-soluble extract).—A clear solution suitable for hypodermic use. Indications same as for desiccated product.

Ampoules (1-mil), 20% solution of dried extract.

Ovarian Substance (whole ovary, desiccated).—For the treatment of scanty, vicarious and irregular menstruation. Frequently beneficial in controlling menorrhagia and dysmenorrhea.

Powder, ounce bottles. Tablets (5-gr.), bottles of 100.

Orchic Substance (desiccated).—For relief of the nervous and mental disorders traceable to imperfect function of the male sex glands (neurasthenia, etc.).

Powder, ounce bottles.

Pineal Glands (desiccated).—Serviceable to stimulate mental and physical growth in backward children who display no stigmata of pituitary or thyroid insufficiency.

Tablets (½-gr.), bottles of 100.

Placenta (desiccated).—An efficient galactagogue in cases in which defective lactation is not due to anatomical conditions.

Capsules (5-gr.), bottles of 50.

Mammary Gland Substance (desiccated).—Prescribed for the treatment of menstrual disorders which arise from excessive ovarian activity (menorrhagia, dysmenorrhea).

Powder, ounce bottles.

Whole Pituitary Gland (desiccated).—Indicated in Froelich's disease (dystrophia adiposo-genitalis) and the less marked cases of faulty physical and sexual development due to pituitary insufficiency.

Powder, ounce bottles.

Anterior Lobe, Pituitary (desiccated).—Indicated in the treatment of pituitary insufficiency in which there is no evidence of posterior lobe involvement.

Powder, ounce bottles.

Posterior Lobe, Pituitary (desiccated).—Prescribed in diabetes insipidus, in pituitary obesity, and in excessive somnolence without functional changes suggestive of anterior lobe involvement.

Powder, drachm vials.

Pituitrin "O."—Used to shorten the second stage of labor by overcoming uterine inertia, to control postpartum hemorrhage, and to stimulate the emptied uterus to thorough contraction.

Ampoules (½-mil and 1-mil), boxes of 6.

Pituitrin "S."—A more concentrated solution of pituitrin. Indicated in surgical shock. Extremely valuable in re-establishing peristalsis and overcoming flatulence following surgery of the abdomen.

Ampoules (1-mil), boxes of 6.

Suprarenal Glands (desiccated).—Used in the treatment of Addison's disease, and in cases of chronic low blood pressure associated with a generalized enfeeblement of the sympathetic nervous system.

Powder, ounce bottles. Capsules (2-gr.), bottles of 100. Tablets (2-gr.), bottles of 100.

Adrenalin Chloride.—Hemostatic; vasomotor stimulant in surgical shock and seasickness; valuable aid in the treatment of asthma and hay fever; a specific in angioneurotic edema, and in serum sickness following injection of antitoxin, etc.

Ampoules, 1:10,000 (1-mil), boxes of 12; 1:3200 (1-mil), boxes of 12. Solution 1:1000, ounce bottles.

Thyroid Glands (desiccated).—Specific in cretinism and myxedema; of decided value in menstrual disorders associated with hypothyroid symptoms; indicated in conditions due to hypothyroidism; contraindicated in the first stage of exophthalmic goitre.

Powder, ounce bottles. Capsules (2-gr.), bottles of 100. Tablets (1/10-gr., 1/5-gr., 1-gr. and 2-gr.), bottles of 100, 500 and 1000, respectively.

Thyroprotein.—A more concentrated preparation displaying the therapeutic properties of desiccated thyroid gland. May be given hypodermically in solution.

Ampoules (1/50 gr., 1-mil), boxes of 12. Tablets (1/50, 1/25 and 1/10 gr.), bottles of 50.

Thyroidectin.—Desiccated blood of thyroidectomized horses Used to alleviate the symptoms of hyperthyroidism, as in toxic and exophthalmic goitre.

Capsules (5-gr.), bottles of 50.

Thyroidectomized-Horse Serum.—Prepared for hypodermic use. Indications same as for thyroidectin.

30-mil vials. 1-mil bulbs, boxes of 10.

Parathyroid Glands (desiccated).—Indicated in tetania parathyropriva, paralysis agitans, etc. Often of value in disturbances of mineral metabolism.

Tablets (1/10 gr.), bottles of 100.

Thymus (desiccated).—Has been used in the treatment of rickets in very young children, in osteomalacia, and in other bone diseases.

Powder, ounce bottles. Capsules (2-gr.), bottles of 100. Tablets (2-gr.), bottles of 100, 500 and 1000.

PARKE, DAVIS & CO.

Armour's
LABORATORY
PRODUCTS

Doctor:-

Have you a case in which a hematinic is immediately necessary? There are a great many where the oxygen carrying power of the blood is reduced to an extent that makes increase of hemoglobin essential.

Extract of Red Bone Marrow (Armour) is hematogenetic and is prepared for that kind of cases. Extract of Red Bone Marrow is entirely free from alcohol. It is palatable and when given well diluted with cold water is easily appropriated.

Literature on the endocrine gland preparations on request.

Thromboplastin (Armour) is a specific hemostatic, 25 c. c. vials.
Pituitary Liquid (Armour) is free from preservatives and is standardized—½ c. c. and 1 c. c. ampoules.

Thyroids (Armour) standardized. Thyroid Tablets, ¼, ½, 1 and 2 grains.
Corpus Luteum (Armour) gives results. Powder, 2 grain tablets, 2 and 5 grain capsules.

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